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The Dental Digest

August 1929

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THE DENTAL DIGEST

VOLUME XXXV AUGUST, 1929 NUMBER 8

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THE DENTAL DIGEST

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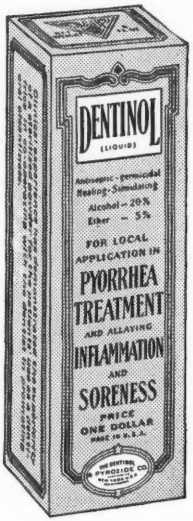

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THE DENTAL DIGEST

VOLUME XXXV AUGUST, 1929 NUMBER 8

The Typal Alignment of the Natural Anterior Teeth as an Esthetic Guide to Their Artificial Arrangement

By FRANK H. McKEVITT, D.D.S., San Francisco, Cal.

The conspicuous absence of the hands in portraits painted by the lesser artists will be noticed if you look for this discrepancy. The works of the masters seem to stress this important manual detail. Burne-Jones, an English artist, and others reproduced with absolute fidelity not only the hands but also the feet of subjects in their creations.

At the unveiling of an equestrian statue in olden times the village simpleton was asked to comment on the sculptured figure and surprised his auditors when he asked, "Where are the horse's teeth?" In photographic reproductions of beautiful women and handsome men the display of teeth enhances the charm of the picture. When this important detail is absent in portraits where the subject's lips are parted in a smile, it is immediately noticed by the least casual of observers.

It might be said in all fairness that teeth are seldom in evidence in any portrait painting, whether the work be a masterpiece or otherwise. And it is not at all remarkable, in view of the foregoing, that dentists, taken by and large, ignore the study of what we as a profession choose to term *esthetics*. The manner in which the artificial anterior teeth are arranged in a large number of cases would seem to establish this inference.

The purpose of this paper is to pave the way for a better understanding not only of prosthodontia but also of orthodontia. We are more or less familiar with the work of J. Leon Williams and his carvings of the twelve anterior teeth. The manufacturers have given us beautiful porcelain replicas of the finest types of natural teeth. Their variety takes a range that will adequately serve the purpose of the most exacting dentist and the most discriminating patient. It is incumbent upon us as a profession, therefore, to use these reproductions with the ideal arrangement in mind.

Pearls have no real artistic value until they have been graduated and placed in a string. Tooth moulds carved by master hands lose their esthetic worth if, like the unstrung pearls, no thought is given to their subsequent arrangement. In the matter of the tooth forms, their handling is relatively simple, so much so, in fact, that the veriest tyro will readily admit it when the plan unfolds. How will this be accomplished? Not so much by extra-oral dimensions as they are con-

veyed by bent profile wires, photographed bismuth paste outlines or templates, but by copies of the teeth themselves and their natural arrangement as preserved in the study cast.

Let us take, for the sake of being practical, the case of a patient who is partially edentulous. The central and lateral incisors and a cuspid on one side have resisted the onslaught of time and preserved the integrity of their original condition, position and alignment. When these three are to be removed, take a study cast and then extract, after selecting their hue, but do not discard them until you have chosen their counterparts from the mould guide. With casts of perfect natural dentures you may compare a complete case with a fragmentary one and note a similarity in their arrangement. Herein lies the index to natural arrangements of the anterior artificial teeth for esthetic purposes. In passing, let me say that it is unnecessary to return the extracted teeth to indentations made in compound, for at best they furnish a gruesome reminder that will upset the mind of an esthete whose desire for the best might be controverted by this indelicacy. A good, clean cast will serve the purpose.

We are more or less familiar with arch forms and their relation to forms of the face and of the teeth. Just to refresh your memories in this connection, compare these casts for a moment and accept them as bases from which to proceed and to which to return.

The three forms described by Williams are the square, the tapering, and the ovoid. The incongruity of indiscriminatingly interchanging these typical forms, one for the other, is so evident that further comment is unnecessary. The central incisors in each type emphasize a characteristic form; the outline form of the tooth corresponds to the form of the arch in typical cases.

Fig. 1 shows good specimen casts of the square type of central incisors. From the incisal edges the mesial and distal sides are approximately parallel for more than one-half of their length.

Fig. 2 is of the tapering form. The mesial and distal sides of the central incisors converge sharply toward the root apex.

Fig. 3 indicates the tapering arch form of the mandible and the maxilla.

Fig. 4 illustrates the ovoid type. The outline form of the central and lateral incisors is made up of segments of circles. The labial surface also presents a convexity, gingivo-incisally and mesio-distally.

The ovoid type differs not in character, but only in degree. Compare the two ovoid maxillary casts in Fig. 5 for size.

Fig. 6 shows the incisal and occlusal aspects of a typal ovoid mandible and maxilla. A true ellipse would be formed if they were placed together. There are of course modifications of all these foregoing types. The manufacturers have supplied teeth for variations from these standards of typal alignments.

At this juncture permit me to remind the reader of the title of this paper, which stresses the typal alignment of the natural teeth and not of tooth forms or arch forms. The illustrations of typal alignments to follow will show five different typical ways in which nature aligns the natural teeth. In any

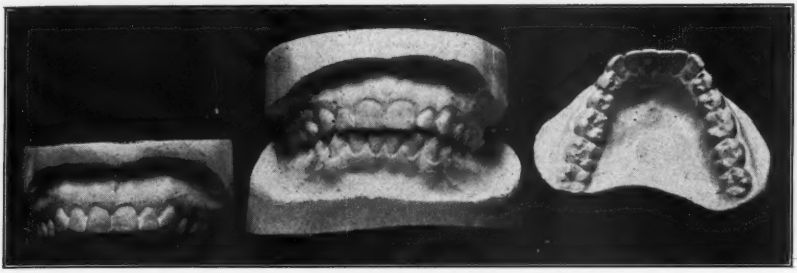


Fig. 1
Two labial views of square type of teeth and one of incisal aspect of mandibular teeth, showing arch form.

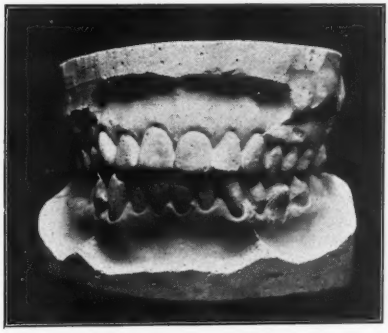


Fig. 2
Labial aspect of typal tapering form of tooth.

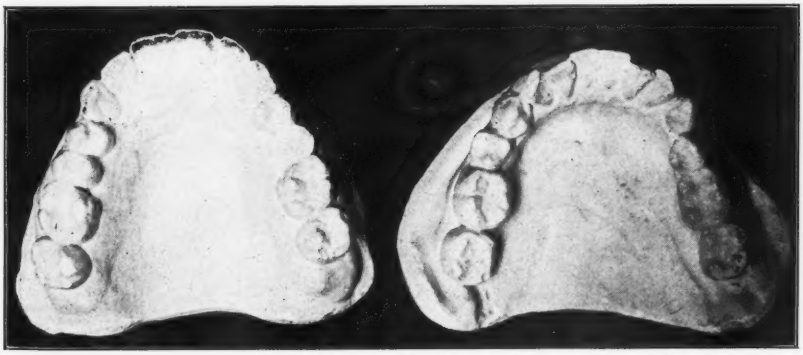


Fig. 3
Incisal aspect of typal tapering form of tooth, showing arch form.

Fig. 4
Labial view of typal ovoid form of tooth.

Fig. 5
Incisal aspect of typal ovoid maxillary arch forms.

Fig. 6
Incisal aspect of typal ovoid tooth and arch form showing maxilla and mandible.

one of these typal alignments can be found one or another of the tooth forms. For example, in the first typal alignment can be found an ovoid, a tapering and a square tooth form, which indicates that the edentulous arch cannot be a true index to tooth selection. This argument applies to the five typal alignments.

The variety of tooth arrangements and of their modifications is infinite, but for practical basic purposes these should suffice. They will be found most readily and students can identify them at a glance. The ease with which they can be obtained in practice will stimulate a search for the more obscure types and their modifications. A practical plan of acquiring these typal alignments is to take good impressions of all cases, box and pour them in stone. If they are to be used as study casts, file them in dust-proof containers; at the end of a year classify them. When they are being examined, view them from the incisal aspect, rather than from the labial, for alignment characteristics that the succeeding pictures will reveal.

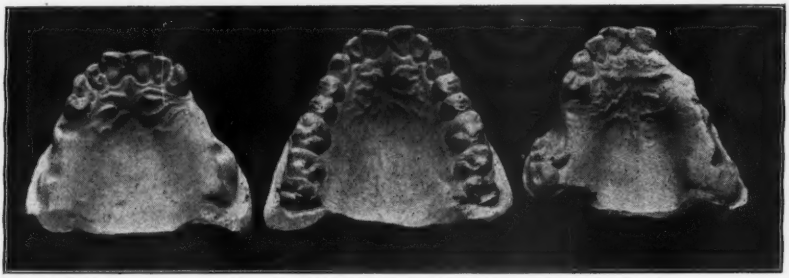


Fig. 7
Tapering forms of teeth in the first typal alignment.

The First Typal Alignment

Fig. 7 shows a typal tooth of the tapering form. The mesio-incisal angles of the centrals converge lingually, the disto-incisal angles being elevated and slightly overlapping the lateral incisors. When artificial teeth are arranged for patients in this manner, note the disposition of the lip tissue and the "Cupid's-bow" effect created because of the elevation of the tooth angles. A much larger tooth can be used because of this angulation than has heretofore been deemed advisable. The breaking of the lights and shades will create an esthetic effect that will elicit a grateful response from the patient because of the natural appearance of the case. If this becomes a matter of routine, you will be surprised at the new range your selection of teeth will take.

Fig. 8 shows an ovoid typal tooth form in the first typal alignment classification. It is best viewed from the lingual aspect.

Fig. 9 shows a typal square tooth form in the first typal alignment classification.

Fig. 10 shows artificial teeth arranged in the first typal alignment.

The Second Typal Alignment

The typal alignment of the anterior

Fig. 8
Incisal and labial aspects of typal ovoid forms of teeth in the first typal alignment.

Fig. 9
Incisal aspect of square tooth in the first typal alignment.

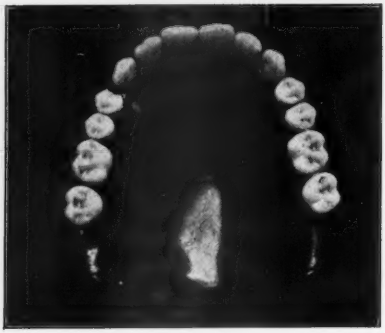


Fig. 10
Artificial teeth arranged in the first typal alignment.

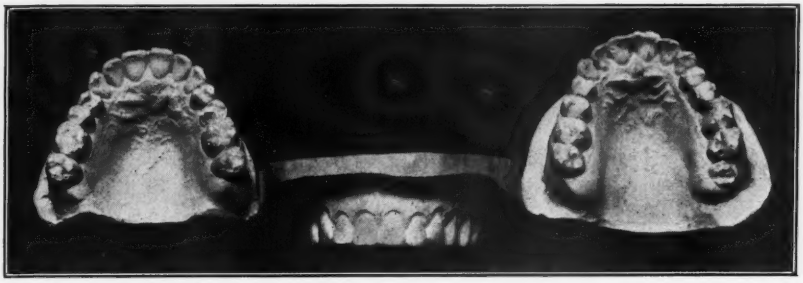


Fig. 11
Incisal and labial aspects of second typal alignment.

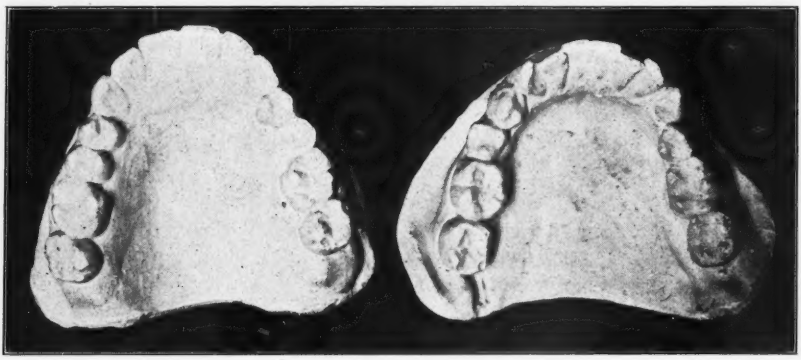


Fig. 12
Incisal aspect of mandible and maxilla showing second typal alignment.

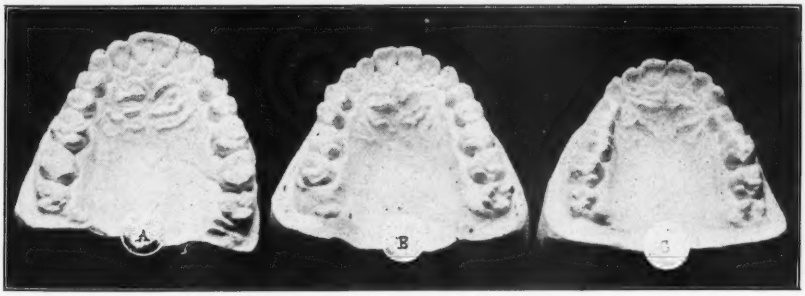


Fig. 13
A. Typal tapering form of tooth in the second typal alignment.
B. Typal square form of tooth in the second typal alignment.
C. Typal ovoid form of tooth in the second typal alignment.

teeth of the central cast in the group in Fig. 11 is the dental acme of every feminine heart's desire. Their even arrangement, added to their small appearance, enhances their beauty. Unfortunately, however, they appear grotesque in any mouth where they are contra-indicated.

The incisal aspect of the maxillary teeth indicates the typal alignment. The incisal edges of the two centrals form almost a straight line, the lateral incisal edge line being slightly depressed below that of the central and cuspid. Often, as in this cast, one lateral is depressed while the other is slightly elevated. The lateral incisors in the mandibular cast are aligned to compensate for the position of the maxillary lateral incisors (Fig. 12). Consequently, when viewed from the labial aspect, the high and low lights on the glistening enamel make the teeth flash.

Fig. 13 shows the similarity in the arrangement of the central and lateral incisor teeth. The alignment of the teeth in these three casts is identical. The important point lies in the fact that the typal form of the tooth itself in each cast differs, those in the cast on the left (*A*) being of the tapering form, in the center (*B*) of the square, and on the right (*C*) of the typal ovoid form.

Fig. 14 shows how the artificial teeth were arranged according to the second typal alignment.

The Third Typal Alignment

The alignment of the central and lateral incisors in Fig. 15 is the reverse of the arrangement of central and lateral incisors in the first typal alignment. The mesio-incisal angles of these teeth are elevated and converge labially, the disto-incisal angles being depressed to such an extent that the lateral incisors overlap them.

The cast on the left in Fig. 16 is of an adult's mouth, the teeth being of the third typal alignment. The central cast is of a child's mouth, and plainly of the third typal alignment, before regulating appliances were used. The cast on the right shows the difficulty "after two years" of keeping the alignment from reverting to type. It will be interesting to note that the teeth of the

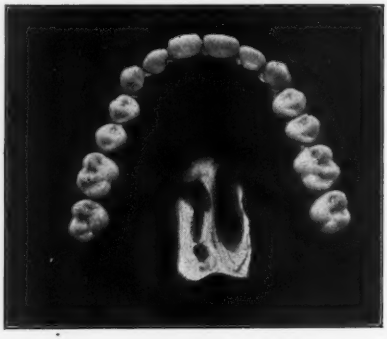


Fig. 14
Artificial teeth arranged for second typal alignment.

child's mother are in the second typal alignment, while the father's are in the first and the child's are in the third. This observation will interest orthodontists.

Fig. 17 shows the incisal aspect of a fragment of a dental arch. Only the central incisors of the natural dentition remain, but they are an infallible index to the third typal alignment.

Fig. 18 depicts an artificial denture copied from the fragmentary arch and reproduced in the third typal alignment. The asymmetrical arrangement

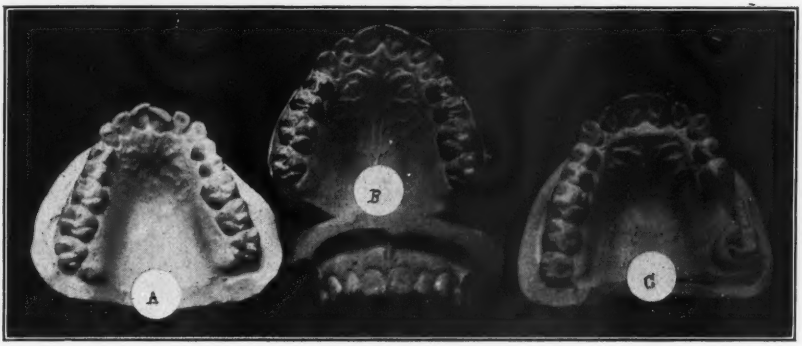


Fig. 15

Labial and incisal aspects of casts showing third typal alignment.
A. Typal tapering tooth form.
B. Typal square tooth form.
C. Typal ovoid tooth form.
Here are three different types of teeth, but the alignment is the same.

Fig. 16

The cast on the left is of an adult mouth, the teeth being of the third typal alignment.
The central cast is of a child's mouth—and plainly of the third typal alignment—before regulating appliances were used.
The cast on the right shows the difficulty "after two years" of keeping the alignment from reverting to type.
It will be interesting to note that the child's mother's teeth are in the second typal alignment, while the father's are in the first and the child's are in the third. This observation will interest orthodontists.

Fig. 17

Incisal aspect of fragment of dental arch. Only the central incisors of the natural dentition remain, but they are an infallible index to the third typal alignment.

Fig. 18

An artificial denture copied from a fragmentary arch and reproduced in the third typal alignment. The asymmetry of the bicuspids and molars was caused by following the natural mandibular teeth.

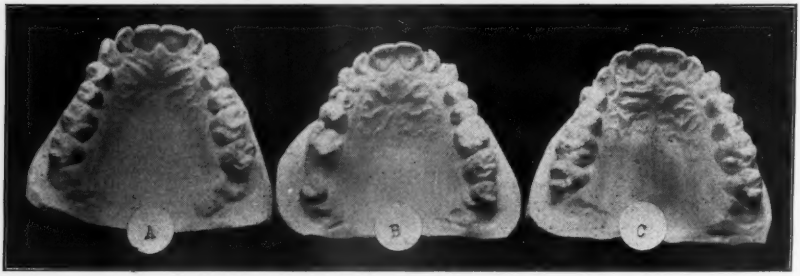


Fig. 19

A. Typal square form of tooth in the fourth typal alignment.
B. Typal tapering tooth in the fourth typal alignment.
C. Typal ovoid tooth in the fourth typal alignment.

Fig. 20
An artificial denture in the fourth typal alignment.

Fig. 21
The fifth typal alignment is characterized by spacing, the arch being wide enough to accommodate the teeth without crowding. Here are a square and tapering typal form of tooth in the fifth alignment. Fig. 5 shows a typal ovoid form in the fifth typal alignment.

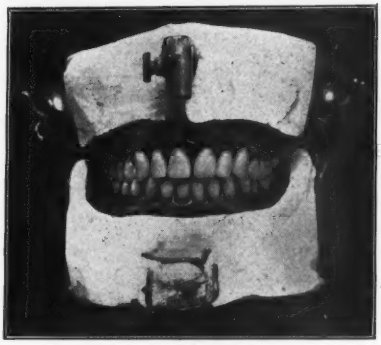


Fig. 22
Labial view of artificial teeth arranged according to the fifth typal alignment.

of the bicuspids and molars was caused by following the natural mandibular teeth.

The Fourth Typal Alignment

The fourth typal alignment of the teeth is the reverse of the second typal alignment. The incisal edges of the centrals run in line with each other, the laterals being elevated, whereas in the second typal alignment the laterals are depressed.

Fig. 19 shows casts of the fourth typal alignment. *A* is of a typal square form of tooth in the fourth typal alignment, *B* is of a typal tapering tooth in the fourth typal alignment, while *C* depicts a typal ovoid tooth in the fourth typal alignment.

Fig. 20 is of an artificial denture arranged according to the fourth typal alignment.

The Fifth Typal Alignment

The fifth typal alignment is characterized by spaces between the teeth. The arches being wide, there is more freedom for the erupting tooth to align itself without crowding its neighbors.

Fig. 21 shows casts of the fifth typal alignment. Here are found a square and a tapering type form of tooth, while Fig. 5 shows a typal ovoid form emphasizing the characteristic typal alignment.

Fig. 23
Incisal view of artificial teeth in the fifth typal alignment.

Fig. 22 shows a labial view of artificial teeth arranged according to the fifth typal alignment, and Fig. 23 depicts the same denture from the incisal aspect.

291 Geary Street

Prevention and Its Significance to the Dentist

By F. ALBERT DONLAN, M.D., Atlantic City, N. J.

(*Continued from July*)

Causative agents for many diseases of bacterial and non-bacterial fungus affections may be left for collateral reading. Rather than discuss the etiology of diseases peculiar to the oral cavity, their various symptoms or organisms, I shall briefly mention whatever seems important as the diseases are discussed. Any impairment of health, irrespective of the cause, but which influences prosthetic dentistry or is responsible for failures because of errors in diagnosis (local or general), will be included.

Diseases of the gums and soft tissues exert an influence upon the teeth. Certain systemic diseases are characterized by their effect upon the gums and soft tissues; they are diabetes, Bright's disease, tuberculosis, syphilis, typhoid. Persons with an underlying rheumatic diathesis, a blood saturated with urea or sugar, are more disposed to affections or infections of the gums than is generally believed. Trophic disturbances influence the health of the gums, encouraging recessions, with subsequent infection and atrophy. Many of the metals are irritants.

Efforts to control local conditions are futile unless the cause is determined. Chronic alcoholics frequently present a picture resembling something else, i.e., pellagra. An infection like gonorrhea, which is very rarely seen in the mouth, may be mistaken for many affections. It is resistant to treatment and may do much harm before being recognized.

Fortunately, bone affections are rare. However, it is wise in a study to eliminate local disturbances in the maxillae. Osteomyelitis may be caused by an infected tooth or may be secondary to systemic conditions. Virchow's disease or leontiasis ossium begins in the maxilla. In osteomalacia or softening of the bones the evidence is conclusive. It is a slow and progressive condition. Pregnant women are liable. Occasionally there is a premature rarefaction of the bones in tabes dorsalis, due to trophic disturbances. Typhoid affects the bones of the jaw either during the course of the disease or following recovery. Gummas are rarely found in the jaws, unless in the maxilla.

Endocrin diseases, malignancy with slowly developing anemia, and cardiorenal affections inhibit the most efficient dental efforts.

Transmission of disease is forever ahead, although in a great many instances a particular avenue of communication always lies open. Pathways of infection are too numerous to mention. When they are better controlled and diseases are taken out of the borderline class, there will be a marked reduction in their occurrence.

Diseases ordinarily contracted through some particular avenue have the distinction of being evasive. The habits of organisms may change and the aforementioned manner of transmission, being uppermost in the mind, prompts omissions.

The obtrusive characteristics of any disease may be absent. The picture

with which one is familiar may not be featured; specific diagnostic methods are not available; many conditions are recognized with certainty, and as many more only with a relative certainty; destruction is greater than formation and frequently it is not easy of detection. Because of any one of these reasons errors will continue.

More or less superficial lesions (acute or chronic) of the accessible mucous membrane and tissues adjacent to it are brought to your attention every day and frequently are not recognized. Every case of certain of the chronic affections presupposes an antecedent one. For your own safety and that of the community you should be positively certain of identifying at least the more tragic ones. It is imperative that you learn the ravages of the communicable diseases and the various methods to inhibit transmission.

Chronic infections such as tuberculosis, syphilis, glanders and actinomycosis are often undeterminable, therefore the likelihood of failure of recognition. The intermediate case is a factor believed to be responsible for the transmission of disease. As a rule, definite characteristics are present in a respective infection or affection, but exceptions are by no means uncommon.

Chronic affections are slow in onset. When symptoms are obvious, there may be no occasion for a history. However, there will be cases escaping scrutiny because of absence of characteristics in onset, etc.

The dentist may be the first one to recognize a case of syphilis by his ability to identify the secondary lesions, i.e., the mucous patch which is highly infectious or the small syphilitic ulcer or ulcers sometimes found about a carious tooth. On account of the predelection for bone, periosteum and viscera the tongue rarely manifests syphilitic lesions. Many so-called parasyphyilitic lesions are encountered in the mouth, and not infrequently they offer opportunity for a mistaken diagnosis.

The initial lesion, the chancre, commonly observed upon the prepuce, glans, penis, vulva, vagina, cervix or lips may appear in the urethra and therefore remain unobserved. Upon the lip it may be unsuspected or atypical. It may heal in five to eight weeks without appropriate treatment and leave a scar.

Gummas involve the bones (tibia, clavicle and skull) before the mucous membrane. Gummas give rise to considerable necrosis and destruction of the hard and soft palate, bones and cartilages of the nose. Rarely are the tonsils involved. The "saddle nose" and characteristic ozena of syphilitic rhinitis may announce the condition. There may be a laryngitis, nocturnal bone pain or falling hair. The picture may be one of general distress with gastro-intestinal disturbances and loss of weight, and finally the true nature of the affection will be declared by the appearance of secondary skin manifestations.

Congenital syphilis may not manifest itself until puberty or around the twenty-first year. In most instances the subject is not aware of the stigma. Scars or fissures sometimes radiate from the corners of the mouth, and this sign may be the only one present. The upper incisors may be peg-shaped, short and broad and notched at the edge. A ground-glass opacity of the cornea may

be apparent. Malformation of the teeth, interstitial keratitis, and deafness constitute Hutchinson's triad of congenital syphilis. Rather than all symptoms being present, they are more frequently found as single inequalities. Very often general chronic adenopathy announces the presence of congenital syphilis.

Ulceration about the mouth due to tuberculosis is rare and is usually secondary. The lesion is solitary as a rule, pale in color, and surrounded by more or less edema. A history confirms its presence. Other infections promoting lesions about the mouth are influenza, pneumonia, typhoid fever and smallpox. Ulceration occurs in the debility of old age, convalescence during the course of any disease or from all sources of irritation.

Early in any disease the individual is fortified for the combat by the response of the blood vascular system, offering as it does resistance to organisms and toxins (natural immunity). This is an effort on the part of nature to limit the infection. Susceptibility to the invasion of organisms is an individual consideration, and the degree is determined by many conditions—the physiological state of the membranes (anemia, congestion, break in continuity), impaired states of health, the degree of natural resistance, the invasive properties of the organism, the particular strain of the organism, virulence (increased by animal passage and epidemics), symbiotic organisms, which increase virulence; the diffusibility of toxins and digestive ferments, hereditary influences and hygiene.

Organisms very often have a specific affinity for certain tissues. Most physicians and dentists who have had a varied experience are familiar with the early conduct of the staphylococci group. Local evidence is usually well announced when consulted. The streptococci, on the other hand, are virulent, and frequently local symptoms consist of nothing but a little serosanguineous or glassy secretion and a peculiar limited woodeny bogginess. The temperature chart is characteristic. The infection may be in the pulp or in a wound following extraction, exhibiting nothing much locally but overwhelming in systemic attack.

Different strains of organisms possess characteristic properties. Some are quickly inhibited by the sun's rays (tuberculosis), while others can withstand a variety of changes in temperature as long as it is not the extremes. The spore of the tetanus bacillus is an example of a germ withstanding heat.

Streptococci are extensively distributed. They are prevalent during an open winter with frequent changes. They are found in the secretions of the mouth, nose, carious teeth and crypts of tonsils. Ordinary colds and sore throats spread them. They are distributed by the hands, handkerchiefs and instruments. They are not very resistant to heat. The streptococcus hemolyticus is a dangerous germ, and when it is the causative organism of a mouth infection or any other, the prognosis is grave. Within a tooth that has been crowned often, by the time the local disturbance becomes manifest, general symptoms are marked (fever, recurring chills and rapid pulse). Extraction may assist in relieving the pain or local discomfort, but very rarely does the drainage following

extraction serve to relieve general symptoms. Frequently general manifestations become worse and the affections may result in necrosis of the bone. A blood culture is always a wise procedure.

Blood transfusions are not very promising unless they are repeated every other day or so and resorted to early. The transfusion is merely a supportive measure intended to increase the patient's resistance.

The more ordinary infections having to do with pus-forming organisms are perhaps well understood. Early drainage as a rule abates the infection. There are occasions when an extraction aggravates the local condition and prompts a rather severe general condition. To avoid or master such a situation experience rather than words is required.

The streptococcus, according to recent reports, has no special affinity for the mouth. However, it is my personal opinion that in certain epidemics the habitat changes, and that in those localities where epidemics are repeated from year to year its occurrence in the mouth is more common. In a course of ten years I observed more than a score of terrible infections due to streptococci. In every instance the teeth were at fault. In several cases a tooth either was being treated or had been "capped." Upon a few occasions a temporary filling was instituted. Local discomfort was not marked, but general depression, chilliness and chills commanded attention. In two instances the infection followed extraction when no obvious signs were present previous to the operation. One case followed the extraction of an unerupted or concealed molar.

From the viewpoint of the involvement of the synovial membranes of joints, heart and kidneys it is believed that there is a transmutation of species following invasion of the cavities due to low oxygen tension. The toxins of the organism or the organisms themselves have a special selective action on the tissues mentioned (Rosenow).

The blood is tissue consisting of fluid and cellular elements. It has to do with and contains the products of metabolic activity. It is the connecting link in anabolic and katabolic processes. The blood constitutes a body defense of definite importance against infection or toxic processes.

The blood bespeaks its own health. When deficient in corpuscles or any of its constituents, anemia results. In consequence of any underlying cause either known or unknown, strictly speaking, anemia is secondary.

In adults, erythroblastic and leukoblastic tissues are sharply differentiated. It is doubtful whether the primary origin of the blood has ever been discovered. Bone marrow, the lymph nodes, thymus and tonsils are said to be active in the cellular life. The white cells are concerned in the defense processes of the body. They absorb fat and protein. Pathologically an increase in whites or a leukocytosis infers infection or is an expression of resistance. Polynuclear leukocytes stand out eminently. An early and marked increase is significant of good resistance; a delayed or moderate increase implies a severe infection with deficient resistance.

The chief constituent of the red cell is iron. The red cells absorb and diffuse oxygen. The whites produce

thrombokinase, a fibrin ferment, and with the blood platelets promote coagulation. Blood tends when in normal health to maintain a uniform composition. Red cells have a shorter life than white.

A composition of blood is altered by disease processes elsewhere. Primary anemia is a provisional diagnosis for an unknown cause. Secondary anemia is a low-grade anemia varying in severity and due to a cause either known or unknown. It is commonly found in focal infections, associated with or following infectious diseases (rheumatism, typhoid, erysipelas and gastro-intestinal diseases) and repeated small hemorrhages or one large hemorrhage.

Etiologically diet has been ascribed for almost every disease. Bacterial or parasitic invasion is specific and therefore not beyond comprehension. The dramatic conduct, characteristic picture, laboratory methods of precision, all have afforded means of recognition. Unquestionably diet is a factor in cause, conduct and effect. From the etiological aspect it is the understanding of the chemistry of metabolism that is significant rather than acclamation, fancy, presumption, enthusiasm or stereotyped knowledge. The chemistry peculiar to the healthful function of organs and glands, once understood, simplifies an understanding of any deviation from normal. Certainly the ingestion of foods is not without influence in either health or disease. Discrimination or choice of food, however, is the important basic principle, and without a knowledge of the chemistry peculiar to digestion one cannot expect to prescribe successfully.

Food is fuel, only when its end-products are readily assimilated and useful. In this state it is known as pabulum. Rather than the end-product of any one food, it is the final disposition of the foods combined that makes the problem a difficult one to understand. Because iron, phosphorus, magnesium or calcium in any given food has helped an individual, it does not follow that the same elements supplied in the same form will "help" individuals in general. Rather than depend upon the alleged merits of a specified diet, first determine the requirements and the state of the parotid gland regarding quality and quantity of saliva. Food should be prescribed with a consideration of the indications and with due respect to the chemistry of the saliva. Until a true conception is acquired, substitutes as diet charts will be uncertain prognosticators. All the efforts in the world will not combat dissolution of the enamel in the event of a faulty salivary chemistry, whether it be in its component salts or in quality. Bacterial detention and local resistance to a large extent depend upon salivary efficiency. Anatomical causes of disease may be activated and certainly gastro-intestinal chemistry is never encouraged in the presence of inefficient salivary digestion or a diet which is contraindicated.

Organs and glands, ductless or otherwise, constituting function, are all interdependent. There must be a synchronized conduct.

Much dependence is placed upon commercial literature as a source of information regarding the vitamins. Magazines extol their virtues and have been generous with recommendations

for all affections to which human flesh is heir. Admitting that a spoonful of vitamins may be a treasure chest, there is much good reason to suspect that in their mysterious use we find deception. The wisdom of philosophy as applied to science has been doubted. Nevertheless philosophy develops the intellect, without which neither observation nor experience is worth much.

"Vitamizing" or dieting often becomes a hobby or a phobia. Stressing the importance of a breakfast consisting of orange juice, toast, bacon and eggs frequently adds distress by encouraging peristaltic movements and intestinal tympanitis. In other words, it encourages a pernicious gastro-intestinal chemistry in a laboratory which is perfect under normal conditions, but in the presence of gastric or duodenal ulcer, chronic appendicitis, biliary affections, or colonic stasis from any cause the laboratory becomes one of unfortunate chaos. It is in such cases that a history is of immeasurable importance to the dentist. If the medical adviser has not already made a diagnosis with tactful assurance, insist upon a clinical report. Thus will you eliminate a class of cases daily seeking the dentist's service and constituting an increasing group of repeated dental failures.

Too many of the present-day menus are the fancies of the highly esthetic dietetic connoisseur who in his love for the unusual and the complex promotes digestive discord. The caterer "dietitian" or chef in his eagerness to please a fastidious public works out menus with an exquisite touch. To names and combinations he gives much thought, paying little attention to incompatibilities. The highest service rendered the public under these circumstances is in the selection of the ultra-smart dishes for the menu. Formerly the recherche in foods was the order of the day. Now the tendency should be toward the simple and better balanced régime.

Atlantic Hospital

(To be continued)

"No Further Misstatements"

By JOSEPH H. KAUFFMANN, D.D.S., New York, N. Y.

A REPLY TO HAROLD J. LEONARD, D.D.S.

In the June, 1929, issue of THE DENTAL DIGEST is a contribution by Dr. Harold J. Leonard of the Dental School of Columbia University, prompted by a paper in the May number of the same journal written by Dr. Maurice William and previously read by him before the First District Dental Society of New York. Dr. William's subject was "The Community Dental Problem versus the Dentists' Economic Problems" and as a vital presentation it should be in the hands of every member of our profession for judicious consideration and reflection. However, Dr. Leonard has written in refutation of certain statements by Dr. William and as public interests are paramount in the matters concerned, I wish to lend my aid in presenting the whole truth of the situation in order to help promote those interests.

Dr. Leonard's version should be read in its entirety. He states that "Dr. William takes the Columbia University Dental School and its dean severely to task for the policies which have been inaugurated in the dental clinic since Dean Owre came. While there is no desire to enter into a controversy by a formal reply to Dr. William, it does seem worth while to let it be known just what the School is doing and is expecting to do in the immediate future so that certain needless fears which seem to have been aroused may be allayed."

I shall definitely discuss not only various statements made by Dr. Leonard in THE DENTAL DIGEST, but other statements which he and Dean Alfred Owre have made since their arrival in New York City. Many of my dental colleagues are not sufficiently aroused to an analytical attitude, and, therefore, I take the liberty of carefully bringing to their attention certain details which they should know in order to be correctly informed. Since Dr. Leonard desires "*no further misstatements,*" I will bear his request in mind at all times.

I shall present quotations from published statements of Dr. Owre, Dr. Leonard and the Columbia Medical Center, to support the facts. On March 5, 1928, I took it upon myself to address a letter to Dean Owre containing various inquiries as directly related to the Columbia Dental School. In addition to expressing certain opinions I asked for an official reply to several queries concerning the question of clinical policy at that institution. In a letter dated March 6, 1928, Dr. Owre wrote that my communication would be taken up by the Executive Faculty. A week later I received the following courteous reply to some of my questions:

March 13, 1928.

Dr. Joseph H. Kauffmann,
110 East 54th Street,
New York City.

Dear Dr. Kauffmann:

I am glad to have the opportunity to reply more fully to your letter as it undoubtedly represents a point of view of many practitioners

like yourself who are working for the best interests of dentistry and the public, but who view, with some apprehension, a move like this one of Columbia's with which you have not been acquainted.

Before giving you the social and economic reasons which bring an institution like Columbia University to organize a service clinic in connection with its teaching clinic, let me tell you just what the plan is. Some of the work done for patients coming to the clinic will be done by highly qualified graduated and licensed dentists. The undergraduates' work will be limited to such as they are prepared for at any given time and which they can do without difficulty or delay. The work done by the clinic will be of the highest quality possible by intelligent planning and skilful education; it will be done expeditiously and in an environment which will make it highly desirable for people of discrimination to go there for their dental work.

In order for the University to give such service to the community of New York, the service clinic must itself be self-supporting to meet the increased cost of the service; in other words each patient must pay the costs for his work. These costs include salaries of service operators as well as materials and overhead for the clinic alone. These costs will not include expenses incident to teaching and research work, building, equipment, etc., for which the University is now raising money. There can be no charity work except such as the charitable organizations wish to pay for, since there are no funds available for it. A social service worker will be employed to select the patients so that none are admitted who can well afford dental service from private practitioners.

A most vital element in the situation, which you of course know, but have evidently not brought into this equation, is that a very large number of people of moderate circumstances in New York City are not now able to obtain adequate dental service. It is unfortunately a fact that a large part of the dental service that is rendered in New York City, like that of many other cities, is inadequate. Much of the restorative work is so poor in design and execution that it is unsanitary, short-lived, and a menace to the health of the patients. Innumerable reports come to us from patients and also by letter from people in moderate circumstances who have desired the best dental service, and at a great personal sacrifice, have paid amply for it, yet failed to get even mediocre work, and, as a result, are now dental and physical wrecks. The need for a place where discriminating people of moderate means can go and get dependable service, is not a theory but an actuality.

The service clinic in connection with a high grade teaching institution is the solution for the problem of these people. Exactly the same problem exists in medicine. Good medical and dental service are available for the well-to-do from private practitioners and for the poor in charity clinics, but are not available for the families of moderate means, which include some of the most valuable elements of society. The service clinic is able by economies, possible by organization, to give service at cost on a fee scale considerably lower than that of private practitioners. But even more than that, the patients have assurance of dependable work since the teaching relationship maintains the highest standard of service. It is the solution advocated for both medicine and dentistry in the very comprehensive report by H. H. Moore on "American Medicine and the People's Health" (Appleton & Co. Pub. 1927), to which you are especially referred. The plan has been in operation in medicine for some years now in the Cornell University Medical Clinic of this city.

As you state, the public interest is paramount. If medicine and dentistry as organized, are unable to serve adequately the public needs, then they must change their organization until the need is met. Dentistry is emphatically not meeting, at present, the needs of the moderate salaried group in New York. This clinic is one step in the direction of meeting them.

As to the economic loss which the dentists in the Washington Heights district may feel from introducing a clinic, amounting, in all, including both service operators and undergraduates, to the equivalent of not over a hundred dental practitioners, let me say that this will probably not be greatly felt. This clinic draws from the whole metropolitan area of eight to ten million people. A study made last year showed that less than five per cent of the patients in this clinic came from the neighborhood of the school. Far more came from the Bronx, Long Island, and New Jersey. There is no reason to suppose that the clinic at the new Medical Center will be any more local in its appeal excepting for Columbia University faculty and students.

The effect that will be felt will be due to the type of service rendered. A clinic of this type will be an educational force in the community of considerable moment. Dentists unable to give adequate service in a community that is educated in good dentistry are likely not to thrive. Such dentists should perhaps be eliminated anyway.

Columbia University is committed to making as excellent a dental school as is humanly possible. For this she needs all the help she can get in the form of money and in the form of cooperation. She must depend in large measure on the help of the profession. Much is to be gained from the friendly criticism and constructive suggestions of practitioners in the city, like yourself. I earnestly hope that you will give us opportunities, as occasions like this arise, to clarify the situation so that the school, the clinic, and the practitioners of the city come to feel as one unit in working for the upbuilding of dentistry and service to the public.

Sincerely yours,

ALFRED OWRE, Dean.

Next in order of evidence I quote an article from the *New York Times*, Sunday, March 24, 1928, written by Dr. Leonard and obviously intended for public consumption. It follows exactly as printed:

LOW PRICE DENTAL CLINIC

Columbia School Has a Tooth Care Plan of Moderate Cost

By HAROLD J. LEONARD,
Associate Professor of Dentistry,
Columbia University.

An experimental dental clinic, to serve people of moderate means, is to be established at the School of Dental and Oral Surgery of Columbia University. Its primary aim will be to furnish high-grade dental service at cost. All types of service to be available, from the emergency and temporary work necessary for patients of the Presbyterian Hospital and Vanderbilt Clinic who can pay only a part of the cost of treatment, to complicated mechanical restorations for those who can afford the luxury of elaborate appliances.

The project has a two-fold purpose: To serve directly the community of New York City and to increase the opportunities for students to observe and study interesting cases and carry on dental research. People of sufficient means to afford good dentistry outside will be excluded, as the University has no desire to enter into competition with private practitioners who are giving satisfactory service to their clients. It is to fill a niche now vacant that the undertaking is to be launched.

NEEDS OF THE MIDDLE CLASS

In medicine the wealthy and the very poor are adequately served. It is the people of moderate means who are left out—the teachers, clerks and many professional people who are not charity seekers, yet who are financially unable to meet the tremendous cost of adequate medical service from private practitioners. The Cornell University School clinic, organized to meet the needs of this group, is being widely discussed by students of medical economics.

Persons belonging to this "white-collar" class are obliged to go to dentists of less skill, charging more moderate fees, with frequently deplorable results. Much money is often spent on reconstructions which are so poorly designed and executed as to make them a positive menace, from the standpoint of health as well as comfort and sightliness.

The opportunity for student research in such a clinic in high-grade reconstruction procedure, where highly trained dentists do the work, is also considered important.

Columbia University can offer through the proposed clinic a preventive program for persons of moderate means. Frequent and continued examinations of children's teeth, teaching the proper use of the toothbrush and the forming of dietetic habits in the young will aid in reducing dental disease. A children's clinic is to be organized, which will serve purely as a small demonstration clinic, since preventive dental work must ultimately be a function of the public schools.

The difficulty with the program of prevention is that dentistry does not know how to do away with dental disease. Much may be done to minimize decay, but its absolute prevention seems far away. The need for research into the actual causes and reasons for susceptibility to dental decay is therefore acute.

In New York more than 100 dental clinics have been organized, most of which are departments of hospitals or are school clinics. Most of those in hospitals are designed for the relief of dental pain in patients, or for the treatment of oral surgical conditions, or teeth infections which are thought to be contributing to the patients' systemic ailments. A few of these are open to outsiders for similar service.

The school clinics are devoted to a similar type of service, with more of a preventive purpose, the attempt being made to take care of the cavities in their beginnings, when treatment is simple, or to prevent them altogether by cleansing methods. Most of the cost of treatment in the schools and hospitals is borne by the community, either in the form of voluntary contributions or by taxes.

A few attempts have been made to establish self-supporting dental clinics where all types of dental service could be obtained. The most notable of these is the "industrial clinic" in the Union Health Centre at 131 East Seventeenth Street, Manhattan. This centre is owned and operated by nine locals of the International Ladies' Garment Workers' Union. The various departments, as the medical and dental, pay a pro rata rent to the locals, which form the holding company. Every kind of dental work is provided for the members, who pay fees based on the cost of work, which amounts to approximately $4.50 an hour.

The application of the clinic idea has never been made in dentistry to any large extent. The Forsyth Dental Institute in Boston has a teaching affiliation with Harvard University, but it is not very active. The Eastman Dental Institute in Rochester theoretically embraces the Dental School of Rochester but unfortunately, owing to high entrance requirements, there have been no dental students since the affiliation took place. The dental clinic of most dental schools is intended primarily to furnish practice for the students and only incidentally has it any immediate purpose in regard to the community.

It is almost impossible for the average family to afford the dental treatment needed. The State Housing Commission of New York recently esti-

mated that two-thirds of the families in the city had incomes of less than $2,500. Tabulations by the United States Bureau of Labor Statistics show that expenditures for dental care of a group of families earning less than $2,500 a year averaged barely $8.25 a year, less than $2.00 a person.

That is, of course, the average expenditure, and does not reveal the true picture, which is approximated by the statement that 50 per cent of these families spent nothing for dental care. The figures indicate that people pay more for dental service when they can afford to pay more. But a small income, even when well managed, will stretch only to a certain point. It is obvious that neglect of dental needs is not so much due to carelessness, ignorance or fear of pain as to the present costs.

The high cost of dental service is not the fault of the dentists, although many who serve a wealthy clientele are highly paid. The costs to a dentist of a modest office in a good office building in middle Manhattan, with an assistant, are approximately $5,000 a year. If his time is completely filled, and if he is to make $3,000 in addition to his expenses, his charge per hour must be at least $5.

There are dentists who do work for less than this, but it is usually at the expense of scrupulous care in the work. Cheap dentistry is worse than useless, since it not only has to be done over, but in the meantime further damage has occurred to the teeth as well as possibly serious systemic complications.

Dentists operating in districts of lower rentals can make some reduction in their operating costs, but it is obvious that adequate dental relief for the majority of families in New York cannot be obtained from private practitioners even under the most economical conditions. The dental clinic is designed to meet this situation.

If there are any statements in the foregoing article or in any other New York newspaper contributions given out by Dr. Leonard or Dr. Owre, which have been "twisted in editing after leaving the School," as claimed by Dr. Leonard in THE DENTAL DIGEST, then so far as I know, no correction or repudiation of such misstatements have ever appeared in those newspapers.

Here then are the *facts*.

1. In THE DENTAL DIGEST Dr. Leonard states that the Columbia dental clinic "the service is not strictly limited to members of the University and Medical Center Communities, but is practically so. There is a definite obligation to take care of these patients if possible and since the operators are dated up two months or more ahead, it means that others are practically excluded. Unless there should be a great accession of clinic space, *this clinic can never be large enough to care for more than the members of these two communities.*" (Italics not in the original.) But Dean Owre states in his official reply of March 12, 1928, "As to the economic loss which the dentists in the Washington Heights district may feel from introducing a clinic amounting in all, including both service operators and undergraduates to the equivalent of not over a hundred dental practitioners, let me say that this will probably not be greatly felt. *This clinic draws from the whole metropolitan area of eight to ten million people.* (Italics not in the original.) A study made last year showed that less than five per cent of the patients in this clinic came from the neighborhood of the School. Far more came from the Bronx, Long Island and New Jersey. *There is no reason to suppose that the clinic at the new Medical Center will be any more local in its appeal excepting for Columbia University faculty and students.*" (Italics not in the original.)

It is a *fact* that two authorities of the same school markedly differ as to the geographical derivation of clinical patronage. Dr. Leonard desires to placate the feelings of dentists outside of the immediate vicinity of the clinic while Dr. Owre wishes to ease the minds of those within its precincts. If the "service clinic" deserves the approval of the whole dental profession

there is no reason why there need be any discrepancies in official statements concerning its clientele.

2. Dr. Leonard further states: "This service for people of moderate means such as make up the University Community is the chief point of criticism of the School." In the *New York Times* the Doctor writes that the clinic will also do "complicated mechanical restorations for those who can afford the luxury of elaborate appliances," although "the University has no desire to enter into competition with private practitioners who are giving satisfactory service to their clients." Dr. Leonard writes in THE DENTAL DIGEST that "There are many disagreeable features in attending a clinic like that of Columbia which are believed to more than offset the lesser costs of treatment." Yet in his letter, Dean Owre states that the services "will be done expeditiously and in an environment which will make it highly desirable for people of discrimination to go there for their dental work."

It is our duty to encourage in every way the propagation of charitable institutions for dental services of all kinds to the needy poor. But those people who can afford the "luxury of elaborate appliances" and other dental work at the minimum charge of four to five dollars an hour do not belong in a dental school clinic.

In spite of the Dean's statement that there would be a selection of deserving patients by a social service worker, it is definitely established by authentic reports that no restrictions whatsoever was placed upon people of prosperous circumstances who were admitted to the "service clinic" merely upon request.

As Dr. Leonard says in THE DENTAL DIGEST: "There is no question about the right of the people of moderate means to good dentistry." Granted. Yet, even if the large "service clinic" plan for the "white-collar class" were a blessing (the fallacy of which I will later discuss), just so long as there are sufficient dental practitioners willing to render competent service for the fees charged in such a "service clinic" there should be none in a university. Dentists in private practice are not entitled to any special exemption from reasonable sources of competition, but a dental school should least of all act as a competitor. One thinks of a university clinic as a place for student service and not as a source of financial revenue which undoubtedly will accrue to the *good showing* of the executive administration.

It is a *fact* that because of the conditions involved in its "service clinic" that the Columbia Dental School is competing with the dental profession, including its own graduates.

3. In the *New York Times* Dr. Leonard states that at the "service clinic" the work is done by "highly trained" dentists. It is a *fact* that the so-called "highly trained" dentists of the Columbia "service clinic" are no different than any other average competent dentists and that no outstanding skill is known by our profession to exist amongst the *paid operators* there, which is not possessed by any average competent dentist in private practice. Indeed the chances of incompetency within and without the Columbia "service clinic" are at least the same in proportion to the number of dentists in each group. The value of any dental

service is not dependent primarily upon one's "highly trained" status but upon practical ability to do everyday work in a competent manner.

The use of the expression "highly trained" dentist in Dr. Leonard's newspaper exposition resembles an advertising catch-phrase, more appropriate to a Main Street Dental Emporium of by-gone days. It attracts the crowd but no intelligent dentist is taken in by such twaddle.

4. Dr. Leonard writes in THE DENTAL DIGEST that "the service phase, although important to the University, is secondary to the teaching function. It is necessary in a modern medical or dental teaching institution to have a large clinic of high-grade service as a basis for the teaching."

What basis? It is common knowledge that up to this writing few if any undergraduate students have ever been present to observe and study cases in the "special service clinic."

The principal function of any dental school is to serve the individual, the community and mankind in scientific education of the undergraduate and postgraduate student by means of teaching and research, all of which should be founded upon a basis of health preservation and not profit-making. You cannot get away from this essential truth.

Dr. Owre writes: "The undergraduates' work will be limited to such as they are prepared for at any given time and which they can do without difficulty or delay." Cases presenting "difficulty or delay" are the very problems in which the student should participate. They must receive such training in order to competently practice after graduation when they are face to face with realities. An undergraduate for proper training should do every possible kind of work with which he can be reasonably intrusted; or, if he is unable to do a stated case himself he should be at the side of his teacher receiving detailed instruction. The Columbia "service clinic" does not serve under present conditions its avowed principal purpose of undergraduate instruction. When you are paying four to five dollars an hour with the understanding of getting "high-grade" work by "highly-trained" dentists, you do not want an undergraduate student to operate upon you. On the other hand, if undergraduate students were to work over these patients the Dental School would be practicing deception upon the very people whom it solicits since such students are not competent to render "highly-trained" services for "high-grade" work. And of what use is instruction in which the student merely "observes" the *paid operators?* Any dentist knows that there is but one way to learn and that is to do it yourself.

It is a *fact* that the repeatedly claimed ideal of undergraduate instruction in the "service clinic" has been distinctly disregarded and that such an assertion was never sincerely fulfilled and never can be under present conditions.

5. Let us consider the practicing dentist as a student. Note how Dr. Leonard states in THE DENTAL DIGEST that Columbia may yet need a "really large pay clinic for people of moderate means," irrespective of "some immediate hardship to dentists who are unable to compete from the standpoint

of technical efficiency." If Columbia Dental School is to become in true spirit an educational institution it will not help these deficient dentists by competing with them under the guise of so-called public welfare work, but it will help them in its educational capacity by giving inexpensive post-graduate courses for their benefit in order to remove those deficiencies and thus aid the patients whom they serve. If Columbia Dental School is so keenly interested in helping people of "moderate means," then to be consistent it should be interested in helping dentists of *moderate means*. But it is a *fact* that the Columbia "service clinic," as now constituted, does neither.

6. In THE DENTAL DIGEST Dr. Leonard states that "the difference in fees between the clinic and private practitioners on account of free rental and overhead is never going to be such as to induce people who can afford to go to private practitioners to come to the clinic, provided that they can get satisfactory treatment in the private office." However, the Dean has written that the cost of treatment *will* include the overhead of the "service clinic." In the *New York Times* Dr. Leonard states that the "costs to a dentist of a modest office in a good office building in middle Manhattan, with an assistant, are approximately $5,000 a year." Accordingly his hourly charge "must be at least $5." In other words, Dr. Leonard tells the profession that office expense is not a factor in the securing of patients at the "service clinic" and in the newspaper he tells the public that because of high office expense the dentist is unable to do good work at the fees established by Columbia. Let me here state that most of the dentists of our community do not practice in the "middle of Manhattan" at a yearly cost of $5,000, and that Dr. Leonard has chosen figures for the public that are undoubtedly too high for the majority of conscientiously practicing dentists.

It is a *fact* that "these statements to the public will not help "better dentistry in the City of New York," but will, by inference, make the public unduly apprehensive as to the cost of competent dental service and deter them from obtaining it at the hands of the dentist in private practice.

In the *New York Times* of February 20, 1928, Dean Owre states that "the new clinic will give dental service at a moderate charge to persons in moderate circumstances who are unwilling to accept charity treatment and are unable to pay the present scale of fees of the dental profession." *The statement is repeated in the public circular sent out by the Columbia Medical Center on February 29, 1928.* He also states in the *New York Times* that "Families in modest circumstances are compelled to neglect their health and finally fall a prey to disease." But if they pay $4.00 to $5.00 an hour at the Columbia "service clinic" for "high-grade" dental work they will be *redeemed!*

7. Now we come to a "most interestin' and amazin' episode" as Philo Vance would say. Dr. Leonard states in the *New York Times* that while dentists may work for less than $5.00 an hour "it is usually at the expense of scrupulous care in their work. Cheap dentistry is worse than useless, since it not only has to be done over,

but in the meantime further damage has occurred to the teeth as well as possibly serious systemic complications." The Doctor states that "cheap dentistry," defined by him as that which costs less than $5.00 an hour, is "worse than useless." Well, assuming this dogmatic statement in the public press to be truthful, which it is not, why do cheap dentistry at Columbia for $4.00 to $5.00 an hour? How much of *their* work at that fee must be done over?

It is a *fact* that there are many capable dentists in every community, especially young practitioners, who can render competent service at $4.00 to $5.00 an hour. To set an arbitrary figure at which good dentistry ends and "cheap dentistry" begins is ridiculous and any such statement in a public newspaper by a university officer is highly improper. Every conscientious dentist who works at that fee may well resent this derogatory imputation.

8. In THE DENTAL DIGEST Dr. Leonard states that "the only real issue in this case is the matter of the best and most economic service to the public not only at this time but in the near future." Absolutely correct. I go further by saying that every dentist should do at all times everything within his power to ultimately eradicate the necessity for the practice of dentistry.

Now let us return to the *New York Times* where Dr. Leonard says that "adequate dental relief for the majority of families in New York cannot be obtained from private practitioners even under the most economical conditions. The dental clinic is designed to meet this situation."

If this majority cannot afford to pay private dentists $4.00 to $5.00 an hour they cannot afford that same fee any easier at the Columbia clinic or any other clinic. The cost being the same, people who can pay that much may save time and traveling expense by going to neighborhood dentists with superior results as I shall demonstrate.

It is a *fact* that Columbia will be making a much more humane public-contribution if it confines its clinical service to the very poor at a cost *much less* than $4.00 to $5.00 an hour, with health and not economics as the real motive.

9. And now let us dissect the virtues (?) of the Columbia "service clinic." Its chief avowed object is to serve as a teaching background for students, help to train dentists and afford a field for dental and medical research. Its secondary avowed object is one of public service; to reduce the cost of dental treatment to people of "moderate means." The price of admittance, $4.00 to $5.00 an hour is one of "actual cost" accepting the statement by Dr. Leonard. The work, we are told, is better than that offered at the same fee by the private practitioner. It is "high-grade," stimulates a public demand by people of all kinds for better dentistry and tends to eliminate the incompetent dentist in private practice.

To avoid any possible confusion it should be thoroughly understood that the "service clinic" (with paid operators) and the "teaching clinic" (for undergraduates) are separate and distinct at Columbia and it is the "service clinic" which is discussed in this article.

Firstly, I have already stated why the educational and research phase is prac-

tically impossible under present conditions. And as to the other claims put forth I deny their validity. Why? Because the existence of the "service clinic" is built upon an *economic* rather than a *public health* foundation. It should emphasize the blessings of prevention by a formidable frontal attack based upon *full oral health service*. Its specious claim of "public welfare" is, when unbared, a matter of *dollars and cents*, the same situation as exists in any dental parlor.

Let us consider the *paid operator* working for a "service clinic" at a fixed salary as one would consider a dental parlor employee. Not being a teacher, but a *paid operator* he holds the *job* because of the salary attached to it. He must not be confused with a clinician in a charitable service, a public-spirited teacher in a dental school clinic, with the man in private practice or with the members of a private group practice who share the financial income on an equitable basis. Since the "service clinic" deals in the "costs" of the finances of "complicated mechanical restorations," let us apply that situation to its *paid operator* under which condition the infallibility of human nature dictates the following.

Not being there primarily as a teacher but as a *paid operator* he takes the *job* because of the salary attached to it. The average man will lack whole-hearted interest in the patient who is not *his* patient. He will do just enough to earn what he is paid since there will be nothing but glory for the profits he brings in above his fixed salary. The excess profit becomes his loss and his employer's gain, a rather tawdry situation in a clinic. He works in an impersonal atmosphere since it is a public clinic and he has therefore no personal, moral or legal responsibility for inefficient service. The corporation is identified with poor practice and not the *paid operator*. Those employing him have already stressed the production of "complicated mechanical restorations" which means profitable revenue, and the spirit of prevention is soon forgotten when "restorative" *business is good* and "cost" is turned into surplus. He becomes a robot under the influence of dental parlor methods and quantity "restorative" production, losing his sense of judgment, initiative and individual freedom. He is subject to the prejudices and favors of those higher up, and must flatter and cajole those who employ him. He is subject to supervision of each act based upon *commercialism* which should be repugnant to every professional man rendering a health service. Under such conditions the *paid operator* becomes one small cog in the machinery of profit-making and the service he renders becomes more and more "technically inefficient" to use Dr. Leonard's words.

Public interests are paramount. But the *fact* is as Dr. William has well said, "the community dental problem is not essentially an economic problem" and the "self-supporting dental clinics which are offered as the cure for the community dental problem prove a delusion and a snare." As now constituted, it is just *commercialized dentistry*, nothing more, nothing less.

But one may say: "Well, if the service is not worth the fee, it will fall down through its own failure." No indeed! There are plenty of people

within the eight to ten million always changing population, from which the clinic draws, according to the Dean, who will be under the impression that a University, like the King of France, can do no harm. The *professors* will take care of them. Indeed the University has in addition the opportunity to continually advertise under the name of *news* which the private dentist has not. The "service clinic" already has, as I pointed out, taken full advantage of this right in order to increase its patronage.

10. And what is the one safe, sound and logical step toward the final solution of the community dental problem. The abolition of any system or mode of dental practice which is founded on the evils of *commercialized restorative dentistry.* The immediate and wholehearted support of a system or mode of dental practice which has *stomatological health service* as its primary basis. This has been thoroughly discussed by Dr. William. It is a *fact,* conceded by all, that *prevention* is the only hope for human beings insofar as dental caries is concerned, since no cure for that disease is known to man.

Dr. Leonard states in THE DENTAL DIGEST that 131 chairs are available for clinical use. But, however, "The clinic space available in the School is by no means adequate to do any large amount of the necessary children's dentistry for the poor of the City of New York. The fifteen chairs used in the mornings for orthodontia are available in the afternoons for this work and these are all." In the *New York Times* Dr. Leonard states "there is merely a small demonstration clinic since preventive dentistry work must ultimately be a function of the public schools." Therefore Columbia will wait until that time arrives, which may be fifty or one hundred years from now, and in the meanwhile will concentrate on restorative dentistry!

Preventive dentistry for children is what should receive emphatic attention at any modern dental school. Of course, everyone knows curative and restorative work is very essential in teaching students, but *prevention must come first for the best public welfare.* Here is Columbia's great opportunity to do a *real* public service.

Dr. Leonard emphasizes in THE DENTAL DIGEST that the "service clinic" is not intended for profit. Then why so *much* restorative dentistry and so *little* preventive dentistry if we are all agreed upon the practical preeminence of prevention? Is this plan a source of inspiration to the future graduates of Columbia Dental School?

Dr. Owre wrote to me on March 6, 1928: "*I quite agree with you that prevention is the one genuine solution to the problem. The rest is more or less incidental it seems to me.*" (Italics not in the original.) Indeed a very sad disappointment has come to those who looked forward to a finer idealism at a great University under the direction of a Dean who was the apostle of prevention for years and years.

I repeat the question put by Dr. William: "*Upon what ethical principle can a great University justify the commercialization of our profession?*"

It is a *fact* that many fair-minded and unselfish members of our profession of all kinds and classes disapprove of the Columbia "service clinic." In their opinion this ill-advised and much

touted innovation, apparently humanitarian but subtly commercial, detracts from the proud name of an otherwise great University, is inimical to the proper education of the dental student, is detrimental to the furtherance of the wholesome progressive policies of the dental profession and what is most important has failed signally in its opportunity to advance the best public interests.

"If this is the kind of an agency" to quote Dr. Leonard in THE DENTAL DIGEST, "which can and will serve the community needs" then, contrary to his advice, "public-spirited dental individuals and societies" should *not* support it.

How long will the thinking and unhypocritical members of the Columbia University School of Dental and Oral Surgery, known, respected and trusted by their colleagues, tolerate this situation? How long will they remain blindfolded to the Truth? No! Dr. Leonard, and no! Dr. Owre, we of this community insist that there must be *"no further misstatements."* The *facts* speak for themselves.

110 East 54th Street

[PULPLESS DECIDUOUS TEETH]

There is no short cut in children's dentistry. If you are going to do this work, do it well. The canals in pulpless teeth must be entered and properly treated. Simply placing an antiseptic in the pulp chamber and filling the tooth is not to be tolerated. The results of careful work certainly are fruitful, and to have filled roots remain apparently healthy for four or five years is a reasonable expectation, provided the age of the patient is such that the retention for that length of time is desired.

—ALVORD.

This "Ultra-Violet"

Old Sol, Earth's First Medicine Man, Enters Dentistry

By A. L. PARSONS, D.D.S., Cleveland, Ohio

In the beginning God created the Heavens and the Earth.
And the Earth was without form and void;
And darkness was upon the face of the deep:
And the Spirit of God moved upon the face of the waters.
And God said, Let there be light: and there was light.

And so Old Sol, the original family doctor, made his first call upon Mother Earth.

Since then the sun has given us not only light and heat; it has given us life and preserved life and eased our aches and ills. It is not at all strange that the ancients, ignorant of a greater power, worshipped the sun god. What may be strange to many moderns, however, is that the healing powers of the sun were known to those ancients more generally, it might be said, than to our present civilization. Modern civilization is just beginning to understand what Sol, the Medicine Man, can do for us, whereas the healing power of the sun was known and sun-worship was practiced thousands of years ago.

Hippocrates, the Father of Medicine, (460-357 B. C.) and Herodotus, the Father of History, (490-409 B. C.) knew of the healing powers of sunlight. The ancient Greeks and Romans built solariums in their homes, where they could expose their bodies to the healing rays of the sun. The ancient Teutons treated fevers with sunlight, and we have found records that the Incas, sun-worshippers, used the sun's rays to cure their ills.

In the early centuries of the Christian era Arabian, Persian and Jewish physicians used sunlight in the healing and treating of diseases. Claudius Galen, a famed Greek physician born in 130 A. D., used sun rays as a healing agent.

Probably those old fellows did not know why, but they did know that sunshine would relieve pain and cure certain bodily ailments. For centuries sunlight was used in the treatment of arthritis and rickets, but it was not until 1800 that sunlight treatment was considered scientifically. It was then that Ritter and Wollaston demonstrated the actuality of an ultra-violet wave in the sun's rays. However, little practical use was made of this knowledge until something like a century later.

Modern Use of Sunlight

Early in 1900 sunlight was used in the treatment of wounds and tuberculosis. Rollier met with such remarkable success in the use of sun rays that he established sun clinics in the Swiss Alps. This renowned heliotherapist attributes the success of his treatment to the ultra-violet wave, and he was the first to work out a scientific manner of treatment. He has written many books on the subject of heliotherapy which have proved of great value to the medical profession.

Modern science has found a way to produce certain beneficial sun rays artificially, and today we speak with familiarity of ultra-violet, infra-red and violet rays as brought to us in various

forms of lamps—sunshine artificially produced, or, as some say, canned sunshine. The medical profession has availed itself of this means of healing and repairing tissues to a greater and greater extent, until no hospital is considered up to date without its electro-therapeutic equipment.

The medical profession is old. The dental profession is a mere youth compared with that of Hippocrates. It therefore happens that our physicians experimented with artificial sunshine long before dentists considered the possibility of its use in their practice.

While great advancements have been made in the use of the ultra-violet ray in the past few years, there is much that is not yet known and that time and experiment will show us. Much of what is known now cannot be explained. We see results and know how they were brought about, but just why only the scientist can answer.

PYORRHEA AND THE ULTRA-VIOLET RAY

Pyorrhea has always been considered the pest of dentistry and curable only in the early stages. However, the ultra-violet ray has established itself as the most perfect means of destroying pyorrhea, as well as trench mouth and all other mouth infections.

We know that after the pus germ has been killed the application of ultra-violet rays at stated intervals, with the time of each application gauged to the individual's need, will tighten loosened teeth. It is an erroneous idea, however, that new bone tissue can be formed around a tooth where there is a deep pyorrhea pocket. Where a deep pocket has been formed and the bone and gum tissue are resorbed, the peridental membrane has been destroyed and that surface of the tooth is dead. This peridental membrane acts as the union between the tooth and the surrounding gum and bone tissue. With this membrane gone, it would be against all laws of nature to make new tissue grow to this dead surface, just as it is impossible to make the outer bark of a tree grow to the pulp after the inner bark is stripped away.

So we do not claim that the ultra-violet ray is a cure-all. It will not grow new teeth nor make solid any teeth that have reached a late stage in pyorrhea. But we do know that it cures pyorrhea and other mouth diseases, and that with proper technic and attention to the teeth and gums pyorrhea will not return. Our roll of patients proves this conclusively, though, as I said, we cannot always tell why.

EFFECTS OF THE ULTRA-VIOLET RAY

Where will you find any single agent of any class of therapy to equal the ultra-violet ray, which is strongly bactericidal and an anodyne, often relieving pain almost instantly? Being a dilater and a stimulant, it will dilate the capillaries and stimulate the blood flow, oxidizing the blood and reestablishing a calcium and phosphorus metabolism. The most severe wound caused by the extraction of an impacted third molar can be made practically painless if properly treated immediately after the operation. Also, there will be no swelling, sloughing, stiffness nor odor, and the wound will heal in about half the time usually required. Or, if treated after the wound has reached an excruciating stage of pain, relief will usually

be complete in from thirty to sixty minutes and the patient will feel no further discomfort. The socket always closes by developing a rapid, healthy granulation and calcium metabolism from the bottom and side walls. We have never known of a socket to close from the outside, as some exodontists unfamiliar with the ultra-violet ray believe.

Fracture of the jaw will respond with remarkable speed. The exposure of a cut to the ultra-violet ray will induce healing in about half the time usually required.

Prize-fighters and football players have a habit of running an eye into the other fellow's fist or elbow, acquiring a beautiful black blemish as a reminder of the encounter. Then, too, there is the man who runs into the edge of an open door in the dark. Under ordinary conditions two weeks will go by before that "black eye" disappears. But, oh, how quickly a natural color can be restored if you only know how! Twenty-four to forty-eight hours after an application of the ultra-violet ray the color will be changed to a yellowish green, and in another day or two all signs of the blemish will have disappeared. However, unless the user of the light knows how to apply it for this purpose, he should not make the attempt, as it might cause very serious results.

A few days ago one of our technicians developed a very large and very painful chalazion on the lower eyelid. The attending specialist, after operating, advised her that the swelling would probably be double the size the next day. But an application of ultra-violet ray was administered upon her return to the office, with the result that all of the pain was immediately eliminated. There were no swelling and no pain the next day. There is no danger of conjunctivitis from the escape of the ray if a little vaseline is spread over the side walls of the applicator when treating the inner area of the lid.

Most of the skin diseases and even diseases of a deeper nature, such as tuberculosis of the bone, yield to the influence of ultra-violet therapy. Ordinary burns, such as those received around the home, will be forgotten a few minutes after exposure to the artificial ray. The sting and throb of a cold-sore will disappear completely within a few minutes, and the cold-sore itself will be dried up within twenty-four hours. An application of ultra-violet ray directly upon an exposed nerve, immediately before capping, is wonderful in restoring vitality. Also, the ray driven into the tooth after the nerve-capping will produce a surprising result in subduing the little ache which so often occurs.

Ultra-violet waves penetrating the skin cause chemical changes to take place in the blood, which react upon the lungs, liver and vital organs. This same principle holds good also in a detrimental way in severe burns from the ultra-violet, the resulting poisons entering the blood.

Depth of Penetration

There is some difference of opinion as to the actual depth of penetration of the ultra-violet ray into the body tissues. These opinions vary from .5 mm. to 2 mm. That, however, must necessarily be governed by the method of application, whether general radiation at 30 inches or under pressure. In

whichever way the ray is used it cannot penetrate beyond the blood stream, and under general radiation it would fall lightly upon the body tissue. But when used under pressure, for instance, in the treatment of pyorrhea and trench mouth, the applicator is held firmly against the gum tissue, the gum becomes pale from checking the blood flow, and the penetration must necessarily be deeper.

Jansen found that he could destroy bacteria to a depth of 1.5 mm. Sampson claims to have destroyed bacteria to a depth of 2 mm., while Price holds that there is no penetration at all, so that the ultra-violet ray cannot destroy bacteria beneath the surface. However, he claims also that by its action upon the blood stream new calcium and phosphorus are formed. This seems to be rather confusing.

Coblentz and Fulton, of the United States Bureau of Standards, demonstrated that bacteria could be destroyed in one second with the use of the ultra-violet ray. Other demonstrations have proved that some bacteria can be killed in 20 seconds, some in 90 seconds and still others in 150 seconds (Harris and Hoyt). This is in accordance with the law that "light must be absorbed to produce an effect."

But the most highly commendable and important of recent information on the actual penetration of the ultra-violet ray into living tissues will be found in the report of the experiments by Drs. Macht, Anderson and Bell entitled *The Penetration of Ultra-Violet Rays into Live Animal Tissue.**

In these experiments it was found that the ray passed through living tissues 2 mm. in thickness, the distance being from 5 to 20 cm. from the target.

In the past the information on penetration has been very meager, but these experiments have established this point definitely. It must now remain for some one to establish the penetration under pressure, as used in the treatment of mouth infections. As the pressure upon the mucous membrane causes a dehematization, we must expect a much deeper penetration than has been heretofore established. As most bacteria are absolutely destroyed after an exposure to the ultra-violet wave, it is evident that there is an absorption of this radiant energy by the protoplasm of the bacteria cells. Bacteria, being acid, live in an acid medium and throw off aromatic amino-acid. This acid area appears to be the first part affected by the ray.

TRENCH MOUTH AND THE ULTRA-VIOLET RAY

Sore, bleeding gums and pyorrhea pus sockets can be eliminated entirely in the majority of cases in a few treatments, the ordinary case yielding after the first application. Trench mouth with its attendant excruciating pain and soreness also will be almost entirely relieved upon the first application and usually completely cured in from six to eight treatments. The sore, sloughed margins of the gums and the necrotic pockets between the teeth will take on a healthy pink color and become hard and firm.

In a fraternity in one of our large colleges every member was a sufferer from trench mouth. In this case it was very easy for the condition to spread,

* *The Journal of the American Medical Association*, January 21, 1928.

as, while everything was kept very clean, proper precautions evidently were not taken to prevent contamination through the dishes and silverware. Then, too, it was a common occurrence, when a cigarette was laid down for a moment while the smoker came out of the haze for a breath of fresh air, to see some cigarette hound pick it up for a puff or two, with the result that it was very easy for the characteristic trench-mouth germ, or any other germ for that matter, to travel from one camping ground to another.

How often one may go into a hotel dining-room or restaurant and find a dab of old food stuck on a plate or cup or in between the tines of a fork! Did the fellow before you have a contagious disease of any kind? Drinking cups may look very innocent when you go into a restaurant for a quick lunch, but many of the causes of trench mouth are picked up in just such a way. The cup is usually handled with the right hand and always brought into contact with the lips at about the same spot. There would be less liability of infection if the left-handed habit were formed.

The corner drug-store soda fountain, too, is just as doubtful. The glasses and spoons are washed usually in very muddy-looking water. Are these utensils ever given a good sterilizing? I doubt it.

However, in the case of pyorrhea and trench mouth, where the gum and bone tissue have fallen away from the root of the tooth owing to the destruction of the delicate peridental membrane which covers the root, new gum and bone tissue cannot possibly grow back onto this dead surface. The tooth will be brought back to a healthy condition, but it will always have an elongated appearance. The x-ray will always show this area of resorption.

Under the proper technic there is absolutely no danger of destruction to the surrounding tissue, and the ray may be held under control as a stimulant and bactericidal agent. Some cases of bleeding gums are very stubborn, due undoubtedly to a systemic condition.

A very marked case of pyorrhea was that of a nurse who was advised that if her teeth were not extracted she would be dead within a year. Being a person who preferred to save her teeth if possible, and not being willing to accept such a diagnosis of her case, she decided to look first into ultra-violet therapy. The teeth are still in her mouth a year later, with the prospect of remaining there for some years to come, and are absolutely free of infection. Repeated cases of almost hopeless conditions have been cleared up and the patients dismissed. However, all cases must return for a regular inspection to prevent a recurrence, because such a condition can recur, just as there may be a recurrence of tonsillitis.

Vaccine

As experience has taught us that pyorrhea, trench mouth and other mouth infections are completely changed in a few treatments, we must presume that the bacteria have been destroyed. Otherwise there would not be a change. What becomes of the bacteria when destroyed? They must go somewhere. They cannot be washed out because they are buried in the tissue. They cannot be picked out because they are too small. There is only one way

for them to travel, and that is into the blood stream.

Now, the blood is teeming with an army of guards which protect us from the invasion of harmful bacteria. These guards, the leucocytes or white blood corpuscles, are constantly working their way through the tissues and blood stream seeking bacteria. When the bacterial invasion becomes too powerful for the white blood corpuscles to conquer, we are obliged to hold up the white flag, call in a physician and trust to his skill to put us back upon our feet. If he is successful, the white blood corpuscles will again be in power to carry on their protective work.

When the ultra-violet ray destroys bacteria of the various mouth infections, these dead bacteria, as they pass into the circulation, are attacked and absorbed by the white blood corpuscles. Dead bacteria offer no resistance. They are devoured. Following this, there must be elimination.

The white blood corpuscles throw off a secretion known as antibodies. In other words, a vaccine is produced—nature's own defense against disease germs. This vaccine, passing through the circulation, immunizes the patient just as an injected vaccine would act in the destruction of bacteria. For example, if the patient is suffering from a rheumatic joint caused by an absorption of pus from the mouth, the condition will clear away rapidly with the destruction of the bacteria in the pyorrhea pockets as a result of the vaccine which nature has formed in the body.

Bacteria are classed in two groups. Those of the first group are oxygen-consuming and live and thrive where oxygen exists. Consequently they are easily cultivated in the laboratory for experimental and research purposes and for the making of vaccines. The second group cannot exist in air and, when cultivated at all, it must be in a vacuum. Vaccines are not made successfully from members of the second group.

MOUTH INFECTIONS

The mouth is the surest gateway to the grave. Most of our ailments enter our bodies by way of the mouth, it being a perfect medium for the propagation of bacteria. Burrowing into the gums around the teeth, the microscopical germs develop by the millions during the night. Not being content to remain in this region, some of them start by way of the blood stream to find new quarters. The new quarters will invariably be at some weak point in the human system, such as the roots of the teeth, the bacteria squeezing out and becoming mixed with the food during mastication, upsetting the stomach and digestive organs in their passage. Many an attack of rheumatism is due to bacteria from pyorrhea pus pockets lodging in one or more of the joints.

The bacteria remaining around the roots of the teeth will gradually absorb and liquefy the gums and bone tissue, producing a pyorrhea pocket. The gums around the teeth will become very sore and inflamed. Some of the pus is being constantly absorbed into the circulation, poisoning the system to such an extent that the victim becomes sickly, emaciated, develops severe headaches, eye ache and dimming sight or dizziness; or there may result local complications too numerous to mention.

These pyorrhea pockets are teeming with bacteria which live and thrive on oxygen—those classed in the first group. They contain also members of the second group, which have found their way into this area. The germs of this second group are particularly tenacious and destructive, entering into their life of destruction after the first tenants have paved the way by absorbing all the oxygen within reach.

The ultra-violet wave makes no distinction between bacteria. First or second group means nothing to the ray. It destroys all kinds and classes which come within its range. They in turn start upon the process of vaccine formation.

As this vaccine is manufactured in a normal manner provided by nature through its guards, the white corpuscles, it is autogenous, and, as the affected area possibly had many varieties and classes of bacteria, the vaccine is also polygenic, which means of all kinds and classes. Therefore we have formed, through the destruction of bacteria by the ultra-violet ray, an autogenous polygenic vaccine.

The proper application of vaccine for colds will give an immunity of from three to twelve months; for smallpox from one to several years. What, then, will be the lasting power of an autogenous polygenic vaccine? Time alone will tell.

Conclusion

Thanks to these wizards, the scientists, who have given us artificial sunshine, we have emerged from darkness into sunlight. But what about the visible colors of the spectrum? This area also must have an important influence upon life, but it seems to have been sadly neglected by the scientists, who have devoted so much of their time to experimenting and exploiting the extremes of the spectrum. In time to come the world is going to hear a lot about the visible spectrum.

Thanks to Doctor Sun and his healing rays, our bodily ailments and mouth infections, including pyorrhea, the "hopelessly incurable," are becoming quite docile. I firmly believe that in the not far distant future all of us will think with horror of the day when it was believed that the cure for many ills lay in a generous extraction of teeth.

832 Rose Building

Nutrition

Third Article

This is continuation of the summary of a series of lectures by Sherman L. Davis, Ph.D., delivered before a special class of the First District Dental Society, New York, during the week of May 6, 1929.

Mineral Salts in Food

Mineral salts are as important as are the starches and sugars, because, while an animal can get its energy from albumins and starches, it cannot survive unless mineral salts are present in a sufficient degree to maintain life. Upon a diet rich in sugar and starch but seriously deficient in mineral salts the animal may keep alive and even get fat, but it cannot grow. When the mineral salts are seriously deficient, the animal not only may cease to grow but is very likely to develop a deformity which may be incurable.

There are industrial reasons why the mineral contents of our food are decreasing. If alfalfa is sowed on good land and on poor land, it will grow in both places, and to outward appearance the plants may be the same, but the plants grown on good land may have as much as 30% more mineral salts than the other plants and may be very far superior as articles of food.

Much food which might be reasonably adequate in mineral salts is refined in such way that when it reaches us there is a serious deficiency. We are guided very largely in eating by our appetite, and, because it is a psychological function, it can be directed by propaganda into channels which are very unprofitable for us. We think about the things we have been taught to like to eat and under the influence of those thoughts certain gastric fluids are secreted. These are, however, rather poor in quality. Hunger is a physiological sensation which is not at all the same thing as appetite, and under its influence we are likely to select foods which will most quickly supply the body with energy. Under the influence of hunger gastric juices are secreted, and these are generally much superior to those secreted at the command of appetite. In common with at least certain animals humans do not exercise much intelligence in the selection of food with which to satisfy either appetite or hunger in such way as to make sure that the foods will maintain the vital processes. This lack of intelligence is more noticeable in connection with the mineral content of food than with the other contents.

The mineral contents are very slight in lean meats, cereals and fats. The person who supplies his energy requirements from these foods deprives his body of important inorganic salts. When this occurs during the period of growth, it generally leaves a deformity. In adult life it generally leads to degeneration.

There are five minerals which play an important part in nutrition—potassium, sodium, calcium, magnesium, iron. Sodium plays no part in the food except to maintain conditions which make proper osmosis possible. It is possible to reduce the body weight by leaving salt out of the diet. The con-

densation of the body fluids is maintained at all hazards, and, if salt is not taken, more water will be eliminated and the weight will fall. When an animal ceases to take salt in the diet, the elimination of salts through the kidneys is rapid on the first day, less rapid on the third day, and nearly stops on the fourth day. The body possesses somewhere a governor which retains in the tissues the amount of salt necessary for the compensation of the body fluids.

Potassium plays a large rôle in body metabolism. Muscle tissue, blood cells and the nuclei of the body cells are rich in it. Its elimination under certain conditions is very similar to the elimination of salt.

When an animal in full nutrition is deprived of all food except salt water and is required to keep its body in motion, it must burn its own body tissues. It will burn first the unspecialized tissues, among which the muscles are perhaps the most important. Muscles contain only a small amount of calcium. The heavy deposits of calcium are in the bones and the teeth. On the second day on which an animal is on a diet of water only, twice as much calcium will be eliminated through the bowels and kidneys as on the first day, and the amount will increase on the third and fourth days. On the fifth day it will decrease slightly but will still be far in excess of the amount that can be accounted for from the muscles. This excess will be drawn from the bony structures of the body. These results seem to show that the body maintains a governor which can conserve its potassium and sodium, but no such control exists for calcium.

During fasting a condition will supervene which we call acidosis. It is always an indication of heavy elimination of calcium and therefore of a withdrawal of that mineral from the bones and the teeth. The three conditions most likely to interest you as causes of acidosis are fasting, a long continuation of a low-grade infection such as pyorrhea pockets, and a persistent imbalance of what we call the mineral bases, to which I have just been referring. Under the influence of any of these causes the blood may undergo radical changes which are of great importance to the nutrition.

You know of course that there has been a general agreement upon a scale of markings to measure possible acid and alkali conditions in the body, that extreme acidity is marked as approximately 3 and extreme alkalinity as 7.8, with water, the neutral, at 7. Under the most favorable conditions the blood is slightly more alkalin than water and has a rating of 7.2 to 7.4. The alkalin reserve of the body has come to be regarded as one of the body's great defenses against successful invasion. This alkalin reserve has many important functions in the body. When it is high, the body has a very strong solvent action upon uric acid, and it is very rare for a person with a high alkalin reserve to form a kidney-stone from uric acid.

The alkalin reserve is of course greatly affected by the character of the diet, and different ratings have been given to the results. If you place three groups of people upon three different diets, the following figures will represent the strength of the alkalin reserve as it is affected by diet when all the

other factors are as nearly alike as possible. The group of people who get most of their nutrition from meat will have an alkalin reserve which may be represented by the figure 32. The second group, which mixes a considerable quantity of meat with vegetables, will have an alkalin reserve represented by the figure 38.5, while those who draw their nutrition almost entirely from vegetables may have alkalin reserve indicated by the figure 45. In other words, the alkalin reserve of those who live entirely upon vegetables will be about 140% of those who live very largely upon meat.

In the case of a nutritional imbalance and a low-grade infection, such as you have in a great many of your patients, there is a strong tendency for the alkalin reserve to be lowered and a large amount of calcium to be withdrawn from the bony tissues, among which the alveolar process is especially susceptible, because it was last laid down and is a sort of temporary structure anyway.

THE IMPORTANCE OF CALCIUM

There is no fundamental chemical process in the body which does not use calcium, either directly or indirectly, and these processes are life itself. The bones and teeth are important, but you can get along without some of the bones and without all of the teeth, but you cannot dispense with the great chemical reactions which are the manifestations of life. It is a general principle of physiology that the body will sacrifice the unspecialized tissues to keep the chemical processes and the vital organs going. In conditions of persistent imbalance the body will send out a call and will draw from the specialized tissues, except the central nervous system.

The heart will not contract nor will the blood coagulate without a sufficient amount of calcium. In calcium starvation the activity of the nervous system becomes so extreme as to threaten disaster. If you withdraw the calcium from a muscle, its conductivity is increased tenfold and it becomes difficult or impossible to control.

The great manufacturing organs of the body, the pancreas, the liver and the spleen, use calcium for synthesizing the enzymes and other chemical processes. When you have a set of teeth that is breaking down from caries, it is a sign that there has been a long-standing calcium imbalance. It exists in the nerve trunks and all through the rest of the body, though you cannot see it as plainly as you can in the teeth. If you place before a fluoroscope the hand of a child whose teeth are undergoing rapid caries, you will find that the bones are just as badly nourished as the teeth. When the diet of an individual does not meet his calcium requirements, nature will sacrifice the unspecialized tissues everywhere to keep the vital processes going.

When a child is undergoing rapid caries of the deciduous teeth, he is probably extremely nervous and may be very combative because of the failure of the central nervous system to function properly as a result of a lack of calcium.

The minimum physiological requirement of calcium for an adult weighing about 150 pounds, after the age of 24, is probably 15 grains every 24 hours. This is, however, not absolute. Between

the ages of six and 20, when the bones are growing rapidly, the physiological requirement is about 30 grains of calcium per day.

The growing child requires from 45 to 60 grains of phosphorus every 24 hours, and the adult requires about 25 grains.

Some time ago I made a careful study of the dietary of about 3,000 families over a long period. In 750 of these families the nutrition was so hopelessly deficient in lime and phosphorus, for children between the ages of six and 20, that there was no possibility of these children developing normal bones, teeth and functions of the central nervous system. Dental caries and bone pathology of some sort are absolutely inevitable in families fed in this way.

When a child is not getting sufficient calcium and phosphorus, nature will maintain the contour of the bony structure as far as possible, but she will be compelled to put in magnesium, which may be described as a very low-grade building material because it has little functioning power. The bones in which magnesium has been put where calcium and phosphorus should be will be porous and weak against the invasion of even mild infections. In bone of optimum quality you will find a ratio of about 1,000 parts of calcium to 9 parts of magnesium. In the bones of children upon a diet deficient in calcium and phosphorus you may find the ratio to be calcium 1,000, magnesium 25 and upward. It is probable that this disturbance of the ratio between calcium and magnesium occurs in the teeth, particularly in the dentin.

Restoring Color and Hardness in Dentin

One day a dentist friend of mine by the name of Rogers presented a young man who exhibited conditions for which I had been looking for a long time. Dr. Hyatt had said to me upon one occasion: "I want to see you stop caries in a case where the cavity cannot be self-draining." This was just such a case. There was a small opening through the enamel, and under the enamel a large cavity. The dentin which had not already broken down was white in color and so soft as to be much like cottage cheese.

His diet had been deficient in important particulars, and it was altered by raising its elements to meet the normal physiological requirements. At the end of three and a half months all of the dentin in the tooth gave the characteristic feeling of perfect dentin, but it was not yet normal in color. At the end of four and a half months it was apparently perfect in structure, very hard and nearly normal in color. We have had about 300 cases of this sort, and we have found no difficulty in restoring dentin to normal hardness and color by means of a properly balanced diet.

Dr. Carr brought in a young man who was preparing to go to college. All along the gingival borders of some of the anterior teeth there were white bands from two to seven millimeters in width, and the teeth were very sensitive. One of the teeth had already broken down into a small cavity, and it was apparent that the others would do so in a short time. He was put on a simple, rational diet, which main-

tained a normal physiological balance, about September 15th. By December 31st all of these gingival lines except one had disappeared and the enamel was again translucent. The enamel in the interproximal spaces which had been affected calcified itself, and the other affected enamel gradually returned to normal color. When small cavities are present, the dentin can be hardened in such way that it will not be subject to caries as long as it is kept in good nutritional condition. Caries is merely a local manifestation of a nutritional imbalance. Dr. Hyatt has estimated, I believe, that about 2,000 first molars erupt in this country each minute, and that in twenty-five years only six of the 2,000 will be left. It may be impossible to save all of the 2,000 because we cannot get all people to pay attention to sound nutritional principles, but, in so far as those principles are observed by the expectant mother, the nursing mother and the child and adult thereafter, those teeth can just as well be preserved as lost.

The unborn child stores up, during the last part of pregnancy, some of the materials it will need later. At the end of seven months of pregnancy the child has stored about eight grams of calcium. At the end of the ninth month it has stored 48 grams, which means that it has stored up 40 grams in 60 days. Forty grams are equivalent to 600 grains. This means that during the last month of pregnancy the mother must store a large amount of calcium, not only for her own protection but to supply the requirements of the child. It is during this time that the first permanent molars are being calcified.

We have carried through 17 cases where we were so fortunate as to be consulted by mothers before the children were born. These mothers were advised as to their diet for their own welfare and for the welfare of the child. Some of these children are now 15 years of age, and not one of them has ever had a cavity in a deciduous tooth, and up to six months ago, which was the last information I had, none of them had had any cavities in the permanent teeth. Teeth which are readily susceptible to decay are the result of a nutritional insufficiency at a critical period.

GOOD MATERIAL AND POOR IN TEETH

If you take two families of guinea-pigs and feed one mother upon a normal diet until the babies are born and the other mother upon a diet which develops scurvy and then kill both mothers the day the babies are born, you will find very important differences in the bones of the mother. The bones of the mother upon the normal diet will analyze about as follows: calcium 48.7%, magnesium 1.74%. The bones of the mother upon the scurvy-producing diet will analyze as follows: calcium 32.7%, magnesium 5.8%, together with a large amount of organic material.

If the babies of the normal mother are killed and the bones analyzed on the day on which the babies are born, the result will be as follows: calcium 17%, magnesium .139%. The bones of the babies from the mother on the scorbutic diet will analyze almost exactly the same as the bones of the babies from the normal mother. These results show a great difference in the calcium content of the bones of the

two mothers, but the bones and teeth of the babies will be practically identical. What does this mean? Merely that the mother upon the deficient diet sacrifices the integrity of her own bony structure to give the material to the children. This emphasizes the importance of feeding the expectant mother not only to meet the requirements of the child but also enough to protect the integrity of her own structures.

There has been brought to our attention the story of two sisters, twins, who married upon the same date. One of the sisters has a morally spineless spinal column. The deciduous teeth of her children have all been in very bad condition, and the children have been very combative because far too large a proportion of their diet has been coca cola and chocolate sundaes. The other mother also has three children, who exhibit none of the combative tendencies of their cousins, but who, on the other hand, are very reasonable and cooperative. Not one of them has ever had a sign of a tooth cavity. I attribute this to the fact that they have been intelligently fed since birth.

In thinking about teeth I should remember that there are no fixed tissues in the body except possibly the enamel, and the fixity of that is open to question. All the other tissues are in a constant state of change. We know that the conditions necessary for the repair of broken bone and for the restoration of partly destroyed bone are the conditions which are necessary for the normal growth of bone.

We had a case of a man who said he was 76 years of age, but whom we thought to be about 86. He fell and fractured his hip. For a time there was great difficulty in getting union, but he was finally put on an intensive treatment such as has been described for the arrest of dental caries. The casts were taken off six weeks ago and he is walking around. Perhaps this treatment will not make the impression upon dentists that it would upon bone surgeons, who are much more familiar with the great difficulty of securing the union following a fracture of a hip, especially in elderly people.

We have had five cases in which the children were born with broken bones due to the contraction of the muscles. One of them, aged three years, had never walked because of the continuous fractures of the femurs. She was placed on a rational diet, conducive to bone-building, with the result that she was playing normally after five months' treatment. After two years she is reported to be quite normal in health and vigor. The nutritional procedure is based upon important physiological conditions.

A child under 20 will have in 100 c.c. of blood about 11 mg. of calcium and 5.75 mg. phosphorus. With such a blood composition broken bones should heal promptly. After 24 years of age the 100 c.c. of blood will contain about 11 mg. of calcium and 3.75 mg. of phosphorus. Under such conditions bone healing may not take place rapidly and it is necessary to bring the phosphorus back to about 5.75. Hardening of the bone tissue usually begins about four weeks from the commencement of treatment by a proper diet, and the bone will probably become very hard in about four months.

The great problem in arresting dental caries or in healing broken

bones is to reestablish the useful proportions of calcium and phosphorus, that is, about 10 calcium to 6 phosphorus. An adult over 24 years of age requires a daily assimilation of about 15 grains of calcium and 25 grains of phosphorus, while a child requires 30 grains of calcium. Milk is rich in calcium (a quart contains about 15 grains), but it does not contain a sufficient quantity and it should be added to a diet which will enable the child to secure a daily total of 30 grains of calcium.

Even on such a diet a person who is worried will develop caries, because nervousness prevents the assimilation of calcium.

One of the requirements of maintaining the health of the bony structures is that the person should take a sufficient quantity of Vitamin C, which must be gotten from fresh fruit, especially the citrus fruits, and thin green-leaf vegetables. This vitamin is deficient in foods which have been stored for a long time or dried or heated. With the deficiency of this vitamin the osteoblasts migrate from their proper locations and form bone tumors elsewhere.

In preparing a diet for arresting dental caries it is necessary to give an adequate amount of Vitamin C. We believe this to require the eating of at least two oranges daily. We must also have Vitamin D, which in the summertime can be obtained from butter and to some degree from carrots, preferably raw. From November to June this form of protection may be obtained by taking two teaspoonfuls of cod-liver oil daily. In addition to these items of food we require the child to drink a quart of milk (1,000 c.c.) daily.

We forbid candy to children who are suffering from dental caries. Candy will not hurt anybody if he gets his nutrition first and his candy afterward, but we find it impossible to establish this condition, and since we cannot successfully temporize, we are compelled to forbid the candy. The prohibition is especially strong against chocolate, and it is also strong against cereals. Wheat is the best of the cereals, but it contains only 4/100% of calcium, and one would have to eat a large amount of wheat cereals to get 30 grains of calcium.

(To be continued)

Photo by C. M. Hayes & Co., Detroit, Mich.

DR. WILLIAM A. GIFFEN

Dr. William A. Giffen

On July 3, 1929, Dr. William A. Giffen died of heart disease at Grace Hospital, Detroit, Michigan. He had been ill for about two years. His death will be an irreparable loss to the dental profession, of which for many years he was a prominent member.

Dr. Giffen was born in Brampton, Ontario, 63 years ago, and at the age of 35 graduated from the Detroit College of Medicine. For the first few years he was engaged in the general practice of dentistry, but in 1910 he began to specialize in denture construction and quickly became proficient in this field. He was one of the founders and the first president of the National Society of Denture Prosthetists.

In his short career Dr. Giffen had bestowed upon him all possible honors. He was a former president of the Detroit Dental Society, the Michigan State Dental Society, and the American Dental Association. He was a member of the State Board of Examiners and a Fellow of the American College of Dentists. In 1926 he was appointed by President Coolidge to be one of America's representatives to the Seventh International Dental Congress, held at Philadelphia on the occasion of the Sesqui-Centennial Celebration.

Dr. Giffen is survived by his widow, two sons and seven brothers and sisters. To them is extended the heartfelt sympathy of the Dental profession.

Report of a Preliminary Survey of Dental Schools and Hospitals In Europe

By J. CAMPBELL THOMPSON, D.M.D., Boston, Mass.

This report is intended solely as a survey of what the writer himself found and does not claim to be an exhaustive study of dental conditions abroad, since time and facilities did not permit of more extensive research.

It seems to be a fundamental condition—an axiom, as it were—that a community may and does receive only such dental service in quantity and quality as that community is educated to and is able to command financially; that is to say, it receives only what it pays for. This is no less true in Ireland, England and Germany, as the writer observed it, than in this country and applies all along the line from the most elemental or dental infirmary practice to the highest type of private practice.

It is also quite axiomatic that in all instances practitioners have adapted themselves to their surroundings, so that the first thing to dismiss from consideration is any attempt at criticism, for there is no doubt that if you or I were placed in the same surroundings we should do about the same as those who are there are doing.

Also, please dismiss from your minds any thought that America leads the world in dentistry, and that there is nothing to be learned from Old-World conditions. That America leads we will not argue, but in proper modesty let us allow some other nationality to say so. That we may learn some valuable methods need not be questioned; it can readily be proved.

Curiously enough, this investigation was started in a community where both extremes were encountered, namely, those hopeless and helpless cases where only extraction could be employed and those other cases where the highest types of present-day reparative work are done, that is, porcelain jacket crowns and cohesive gold fillings. The community referred to is Dublin, Ireland, just recovering from bitter internal strife and bravely facing its future with stout heart, determined to carve out a worthy destiny.

Imagine, if you can, any group of men in this country being called upon to improvise a dental chair for surgical operations and producing it almost out of nothing, yet making it a highly satisfactory product. I shall not take your time to describe this curious atrocity, but I shall try to give you a word-picture of results as obtained in this well-managed, humanity-serving dental infirmary.

D. L. Rogers, the very capable dean, has worked out a system which is efficient and satisfactory to the extreme, and, while possibly more efficient methods may be demonstrated elsewhere, yet for this community in Dublin, considering all their handicaps, I doubt whether any one could point out any workable improvements. This, I believe, we will all admit is more than can be said of our own efforts, whether in office or infirmary.

For the sake of brevity let us con-

sider several other infirmaries and then refer back to Dublin as we go.

Take the Dental Infirmary of the London Hospital as one ideally equipped and managed, except possibly in one particular, namely, the lack of an alternate operating room.

In the Dublin, London and Guy's (London) Infirmaries, all give preference to nitrous oxid for extractions, and since oxygen is a factor as to cost, as the appliances for administering the combined nitrous oxid and oxygen gases are admittedly somewhat complicated and of considerable first cost, especially our American-made machines, we found those clever fellows over there doing much the same as we did twenty or twenty-five years ago in this country, i.e., removing all teeth and roots possible at one application of the anesthetic. As one operator put it, "We take out at one time all the teeth we consider good for the patient to have done at one sitting."

Of course complications have to be met, and in some instances they were overcome by again applying the inhaler as at first, where only the face cover with bag attached and lying in front of the patient was the modus operandi. When a nasal inhaler was used, more gas was given, but where it seemed that a prolonged operation was to ensue, or where a patient was not under control so quickly as in a normal case, then the bag was shifted and another used, into which was dumped an indefinite amount of ether, and when the patient was under, a hurried operation was performed usually with the best of results.

Yes, there were some cases where a root was fractured and was allowed to remain, so as not to delay the regular run of patients, but this was the case only in the overworked infirmary.

In Dublin it was the desire of Dean Rogers that the students should return to the school and have a month of operative work before lectures began. The same procedure is followed in London, but at Guy's the students, being more advanced, performed excellently and were most earnest and sincere, and splendid teamwork, with each man aiding the one who was operating, was especially noticeable.

At Guy's two fully equipped operating rooms are used. Gas cylinders lie flat on the floor, and a foot control is used to open the valves. Nasal inhalers are used after the face cover has been first employed. Close supervision of anesthetizing on the part of one serious instructor with equally close watch by others supervising the operative procedure was noted, as well as the fact that no loss of time ensued from recovery or clearing away, since as soon as the tooth or teeth were extracted all active workers moved to the next operating room, where the next patient was found seated, with napkin in place, chart at hand and instruments ready.

Recovery at Guy's was accomplished with patients, four at a time, seated before old washstand affairs, one for each.

At Dublin recovery cots or beds are used and an ordinary bowl and tumbler of water provided. All patients are required to return during the next day or two for observation of healing and for syringing of the socket by means of a compressed air spray and mild antiseptic.

At the London Hospital a most efficient equipment and system are employed. First, the operating room is made attractive by plenty of fresh air, a reasonable show of nicely polished metal, and, best of all, cut flowers and growing plants, which are very much in evidence and lend an atmosphere entirely different and surely of good effect upon both patients and operators.

The patient's chart always follows the patient and is always placed in the same definite place, easily seen, and is at once attended to by the operator after the work is finished. This is by far the best plan noted and is better even than the one in use in the Berlin State University Infirmary.

At the London Hospital, a woman nurse, charming and efficient, and a man helper attend to the routine and relieve the operators of post-operative attention, the former assisting patients from the operating room to the recovery room and locating new patients, etc. This is invariably done in this way.

Restoratives are all located in one place on a broad, flat dish, ready for use without search or lost motion.

Forceps are kept in a sterile solution, and a tight-fitting piece of rubber retains two rows of forceps in a receptacle readily available and with handles dry.

A complete assortment of variable mouth props as well as mechanical props is readily at hand, without a step to be taken to find them.

A tube prop seems to be a useful type where a mechanical prop is later applied.

Where economy of time is such a factor as at the Dublin Infirmary especially, the operator took the trouble to lift the smaller patients from the operating chair to the recovery couch. A heavier patient is lifted by means of leather handles attached to the canvas seat lining the improvised chair, and the heavy patient is slid onto a wheel table and quickly transported to the recovery room.

Now, let us consider a more completely—in fact, the most completely—furnished and best equipped dental school that it has been the writer's privilege to visit, the Royal Dental Hospital in London. Here we have the last word in completeness and adequate methods for a school in general.

See the room where surgical work is done. Note the splendid operating table and especially the wonderful lamp overhead, resembling somewhat the crystal-maze effect of a lighthouse, carrying a large mirror so adjusted that all may minutely observe the operative procedure, even though not in the front line, and it is a light that is guaranteed not to produce any shadows. And it works, they say.

See the research laboratory with its permanent trained assistant. In London there is an organization of 175 such trained research laboratory assistants, who must pass certain prescribed tests in photography, radiography, biology, chemistry and such allied sciences as will make an assistant in a research laboratory really useful.

See the many animals—dogs, cats, rabbits, guinea-pigs, monkeys, chickens, etc.—which are being actively used even in off term, as is witnessed by their wounds.

Of course you expect to find properly shaped, well-lighted laboratory benches, up-to-date dental chairs with

good lighting facilities, fountain cuspidors, units, growing plants, gold fish, etc., in such an institution.

A rather original method of caring for orthodontic surplus work is in vogue here. There are a large number of patients present for orthodontic treatment who could well afford a fair charge by a private practitioner, but who prefer the prestige and consultation of the Royal Dental College faculty.

The number is larger than can be cared for by the student body, therefore they have a clever mechanical man who employs assistants, and he himself, with consultation and in cooperation with the faculty, carries through many such cases, often without the patient ever seeing the consultants. This evidently is a source of satisfactory service to a worthy clientele and a means of increasing the usefulness and income of the institution.

In passing, reference should be made to the new Eastman Infirmary. This is in course of construction in connection with the Royal Free Hospital of London. It will not be available before March, 1930, and, while located in a section promising all the material possible to use, yet it is a new venture and will be built up gradually, as the Royal Free Hospital has a mere skeleton of a dental infirmary now. It should be stated that Mr. Eastman is presenting only the building and site, the equipment and maintenance being provided by two public-spirited English gentlemen.

Crossing over to Germany, let us note the contrast. First, we have a generally higher type of patient in the dental infirmary. We note a better grade of denture invariably present—none of those all-gone cases of 100% decay such as one sees so frequently in Ireland, Scotland and England.

Here, instead of all infirmary routine extraction being done under nitrous oxid, we see, in two days, but one such case, all others being done under 1% novocain, and extractions of single teeth instead of a half-dozen or more at a sitting.

Here, also, efficiency reigns. No operator does a single phase of the work that can and should be done by a subordinate.

Note the clever though possibly repulsive cow-horn chairs, where the patient is seated with the horn-shaped projections supporting him under the armpits, thus preventing his slipping down in the chair, as may happen at times.

Note also that 1% novocain, prepared fresh each morning, is invariably used from a large container.

Note that tincture of iodin is used only in deep conduction, not in superficial infiltration anesthesia.

Note that a readily adjustable headlamp hangs over the chair for each operator. It is of a reduced candle-power, a light-weight affair, held in place by a white celluloid band.

Note the clever holders for iodoform gauze.

Note the clever containers used for holding sterilized gauze sponges, etc.

Note the black ligature cotton on a glass spool held in a sterilizing solution, always ready, always sterile and always inexpensive.

Many root amputations were done in the two days under review. These were accomplished very expeditiously and, they claim, with universally good re-

sults, provided, mainly, that the stump of root had previously been thoroughly filled with gutta-percha.

If it is necessary to fill a root from the root-end, as rarely happens, a retentive shape is made and a filling of tin is inserted. A very generous opening is made and the tissues retracted, followed by the use of a large bur in the dental engine, thus cutting a portion of the root diagonally and not aiming to leave the stump convex, as we were taught at one time. Removal of all diseased tissue, dusting with iodoform powder and four ligatures, finally covered with tincture of iodin, constitute the complete operation, and in two days not less than ten such cases were done.

Note the general use of dry heat, which is applied about 10 minutes for all cases of swelling due to abscess.

Note that all instruments, whether large or small, rest in a definite group or space, so that any one of them may be readily located. This was always the case in any office or infirmary observed in Germany.

Recall the large two-cylinder gas-unit affair which supplies compressed air (CO_2 gas); also, illuminated mouth mirrors, reflecting lamp, etc.—a clumsy, poor substitute for the modern unit.

Recall also the very large bulky N_2O and O apparatus. They claim that it does good work, but, oh, so needlessly unattractive and complicated in appearance!

In Leipzig we find emphasis placed on the sterilizing of handpieces, six at a time being immersed in hot paraffin oil and the excess oil being eliminated in a centrifugal machine. This method boils out dirt and grit and sterilizes and lubricates the handpiece by the one process.

In Leipzig also was demonstrated a new method of taking impressions of bell-shaped teeth by the use of a flexible impression material, which, being elastic, gives at the bulge of the crown and assumes its original position afterward. This material comes in a long cylindrical form and is placed in a metal syringe which is heated in a metal boiler for the purpose. The softened material is located in a tray, put to place, cooled and further managed as an ordinary modeling compound. A close examination will reveal cotton fiber worked into the impression material, this being in part responsible for its elasticity as well as its tenacity.

There remains yet a consideration of the Dental Institute, a sort of infirmary or public hospital, supported in part by the state and providing dental service for people of moderate means. A government director, a sort of political appointee, appears to have the oversight and general management of the place, and he seems to be a well-paid, sleek-looking and clever-acting fellow, able to travel and to live well.

The actual director is a serious, kindly gentleman who evidently has the worry and actual management of affairs. This gentleman is paid a salary and has virtually a life tenure of office.

Those who do the actual work on the patients are, for the most part, recent graduates of both sexes, who remain as associates for three years or so, as a rule.

A curious kind of hardship is the lot of a thriving young aspirant toward a professorship, which is a much coveted

prize. Such an aspirant is obliged to devote half of each day during the week for the entire period and, as a result, at least one, to our knowledge, is obliged to work until eight and nine o'clock at night—surely a long day's work for a dentist.

As to fees, we find all hospitals and infirmaries other than the state institutions charging the same ratio as we charge at the Harvard Dental Infirmary, and this applies to Ireland, England and Germany, in so far as this investigation extends. In private practice much the same ratio prevails as among our practitioners.

In conclusion, the writer would add a more personal touch by giving his actual experience in Dublin. Here we arrive without recommendation or introduction, with merely a brief note mailed to the kindly dean, D. L. Rogers, stating our desire to be shown over the Dental School of Dublin University.

Imagine our surprise to receive a telephone call upon our arrival at the hotel in Dublin making a definite appointment for the next day, then upon reaching the school being honored by a consultation with several leaders of dentistry in other institutions, followed by an invitation to dine in the evening at a splendid private city club with adjournment to Dean Rogers' most comfortable home near by, and a pleasant evening spent by an open fire with this group of men, who were charming, talented and able to converse upon practically any current topic aside from their alert and keen dental knowledge.

I wonder whether we are as ready to meet the stranger at our threshold as was the case in this instance. I hope so. I, for one, shall try to be ready. Also, I shall try to put into practice all that I have been privileged to learn through the kind courtesy of our contemporaries across-the-sea.

39 Bay State Road.

Election of Officers

At a recent meeting of the Vermont State Dental Society the following officers were elected:

President, Carter R. Woods, Rutland, Vt.; First Vice-President, P. Mahoney, Burlington, Vt.; Second Vice-President, H. R. Bristol, Bennington, Vt.; Secretary, Edward B. Jenney, Rutland, Vt.; Treasurer, Howard F. Killary, Burlington, Vt.

Executive Committee: H. H. Reed, Barre, Vt.; G. C. Cowan, Montpelier, Vt.; L. C. Robinson, Morrisville, Vt.

For appointment to State Board: H. B. Small, Burlington, Vt. National Delegate: O. S. Sims, Burlington, Vt. Alternate: Earle E. Johnson, Rutland, Vt.

American Dental Association Meeting

October 7-11, 1929

Washington—A City of Monuments

The City of Washington, where the Seventy-first Annual Convention of the American Dental Association is to be held, October 7-11, 1929, might properly be called the *City of Monuments*. In no other city of this country are there so many sculptured figures and statues in bronze or marble erected to the memory of illustrious Americans and foreigners whose lives have been linked with the history of the United States.

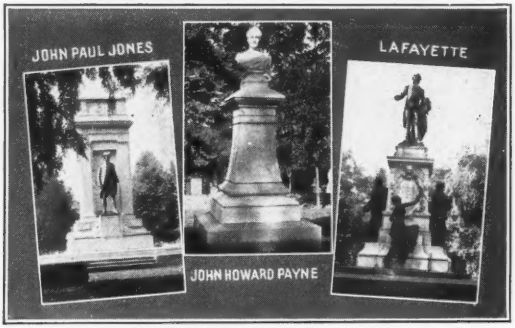
The Washington Monument, the Lincoln Memorial, the Amphitheatre at Arlington and the Tomb of the Unknown Dead perhaps attract the visitor's greatest attention and interest. It would take many days to cover the entire city of Washington to study the hundreds of statues and memorials. In all of the four sections of the city can be found some interesting outdoor memorial, while in Statuary Hall of the Capitol are statues of many eminent Americans who have been identified with the history of the country. In the rotunda is a heroic bust of Lincoln modeled from the death mask.

The cemeteries contain numerous memorials of more than passing interest. In Oak Hill, the oldest burying ground in Washington, is a monument honoring John Howard Payne, author of *Home, Sweet Home*. Payne's body was buried in 1852 in a cemetery near Tunis, Africa, and remained there until the late W. W. Corcoran, in 1883, had it brought to this country, where it was re-interred at Oak Hill. At the ceremonies were present Chief Justice Chase; Lincoln's Secretary of War, Edwin M. Stanton, and many other eminent Americans.

One of the most remarkable pieces of sculpture is in Rock Creek Cemetery. It stands over the grave of Mrs. Adams, wife of a descendant of John Quincy Adams. This statue, the work of St. Gaudens, is reputed to be one of the most artistic productions of that eminent sculptor and is famous among art students all over the world. It has

been called variously *Grief* and the *Peace of God*. The statue rests on a knoll surrounded by a clump of trees. This heroic bronze figure of a woman seems to have a mysterious influence upon many who visit the tomb, due perhaps to the story that Mrs. Adams committed suicide under tragic circumstances.

A few of the more notable memorials may be mentioned—the equestrian statue of Andrew Jackson in Lafayette Square, directly opposite the White House; an equestrian statue of George Washington in Washington Circle, statues of Admiral Farragut, Alexander Hamilton, Daniel Webster, Generals Sheridan, Grant, Meade, Hancock, Thomas, Scott, Logan; John Paul Jones, McPherson, Dupont, Joan of Arc, General Nathaniel Greene, Washington's aid; Edmund Burke, the poet Dante, Bishop Asbury, Columbus, Louis Jacques, Mande Daguerre, inventor of the daguerrotype; Professor Joseph Henry, the French generals Lafayette and Rochambeau, Kosciuszko, Chief Justice Chase, Albert Pike, Benjamin Franklin. In some form or other, it would seem, every notable American and many distinguished figures of other countries have been memorialized in Washington. There is yet no statue of Woodrow Wilson, but his body rests in the apse of the Cathedral of St. Peter and St. Paul at Mount St. Albans, known also as the National Cathedral and the Washington Cathedral, and to his shrine go every year hundreds of admirers of the War President.



DIGESTS

DEATH FOLLOWING EXTRACTION OF TEETH

By William D. Nesbit, D.D.S.

This is the case report of a man 43 years of age who, two weeks before his admission to the hospital, had had extracted the upper right first and second molars. The upper right maxilla was greatly swollen, the temperature was 101.6 F., the pulse was 90, and the respiration 20. The patient could open his mouth only 1 cm. and was in great distress. The x-ray showed a marked area of bone destruction. The case was diagnosed as osteomyelitis of the upper right maxilla and cellutitis of the right cheek.

A small sinus opposite the site of the upper right first molar was enlarged and a quantity of pus evacuated. Staphylococcus aureus was cultured. During the operation the patient had a chill. The sinus was irrigated and dressed daily. Twelve days later the area over the tempero-mandibular joint was incised and 50 c.c. of thick, yellow pus removed. Two days later signs of meningitis appeared and on the seventeenth day after admission to the hospital, the patient died.

Necropsy showed the following sequence of events: osteomyelitis of the upper right maxilla; acute maxillary sinusitis; extension of the infection along the right maxillary nerve to the right semi-lunar ganglion, with resulting meningitis and abscess of the right temporal lobe of the cerebrum.—*The Journal of the American Dental Association,* June, 1929.

DIAGNOSIS AND TREATMENT IN EXODONTIA

By Emil L. Aison, D.D.S.

Many of the pathological conditions in the mouth are merely local symptoms of systemic diseases. To extract under these conditions may produce serious results. The patient, without his knowledge may be suffering from a subacute blood, heart or kidney disease. The extraction may cause serious illness and even death. In these cases only as few teeth as possible should be removed at one time, thereby permitting the patient to build up his resistance.

Hemophiliacs and excessive bleeders must be treated to improve blood coagulation. Ten-grain doses of calcium lactate taken from four to five times daily for two or three days, with a resting period of two or three days before the operation, will be of material assistance. Fibrogen, thromboplastin, and surgical pituitrin are also effective.

After an unsuccessful operation two or three days should be permitted to elapse before another attempt is made to extract so that trauma may be minimized. Local palliative treatment together with the use of sedatives or

hypnotics is indicated. Teeth should not be extracted during an acute attack of Vincent's infection as the result may be fatal. When there is infection of the deep cellular structures of the neck, the floor of the mouth and the face, free drainage is of the utmost importance. — *The Dental Cosmos,* June, 1929.

A NEW THEORY OF THE CAUSE OF DENTAL CARIES

By CHARLES F. BODECKER, D.D.S.

The author proves that there is a system of channels in both the dentin and the enamel and that there is permeability from the pulp chamber to the surface of the tooth. He claims that dental lymph, containing free mineral salts, passes through these channels and neutralizes any acid condition, thus inhibiting caries.

The exciting cause of caries is the decomposition of carbohydrate food in the presence of bacteria, forming lactic acid.

The predisposing cause is the change in the composition of the dental lymph, especially a decrease in the mineral content. This variation in the content of the dental lymph, which is derived from the blood plasma, is affected by the general health of the individual.

This theory explains why teeth do not always decay in unclean mouths; why there is an increase in caries during pregnancy and systemic illnesses; why pulpless teeth are more brittle and more prone to decay than vital teeth; and why mottled enamel, which is more porous than normal enamel, is seemingly more resistant to caries.—*The Dental Cosmos,* June, 1929.

Foreign Dental Literature

Edited by JOHN JACOB POSNER, LL.B., D.D.S., New York

EXPLORATORY PUNCTURE (FOR DIAGNOSIS) IN THE MOUTH

By DR. MED. MAX SEBBA, Danzig

In many cases of illness, clinical symptoms and radiographic findings leave one in doubt. In these instances, the exploratory puncture is of great diagnostic value. The radiograph may lead to error in diagnosis because of the similar appearance of the antrum and the cyst. This is particularly true when the first molar has been lost and the process resorbed. In old people, this error is easily made since the antrum dips down almost to the alveolar ridge.

Where doubt exists as to the true nature of a condition, the exploratory puncture is valuable and may provide definite material for true diagnosis. A growth is frequently confused with a cyst. The puncture will disclose the liquid content of a cyst. Sometimes a palatal abscess resembles an acutely infected cyst and here again the exploratory puncture will reveal the contents of the swelling. There is no danger of infection from the puncture provided that the area is first painted with iodin.

Extreme care, however, must be exercised when making the puncture in the floor of the mouth where a ranula is suspected or a dermoid cyst. This region is particularly susceptible to infection.

The following cases are interesting examples of confused diagnoses, including several where the x-ray was also used. They serve to impress the fact that considerable care and thought must be given to proper examination to definitely determine the method of procedure.

1. A woman of middle age had several molars removed. As a result there was so much atrophy that the buccal wall of the antrum remained only as a thin plate of bone which was easily compressed with a crackling sound. It was this sound that suggested and led to an operation for a cyst. When the flap was made and the area opened, it was found that the *cyst* was a normal antrum.

2. A woman, 45 years of age, had severe neuralgic pains following the root-canal treatment of an upper first bicuspid. X-ray diagnosis indicated a cyst. The antrum was washed out by a rhinologist and found to be clear. Another radiograph of the antrum was made whereupon an operation was performed through the buccal plate. No relief was afforded although a fistula was produced which lasted for a long time. The removal of a molar in the *lower* jaw caused all the neuralgic symptoms to disappear.

3. A patient, 70 years of age, with an edentulous mouth had a yielding buccal plate in the molar region. Diagnosis of "air cyst" was made, and an operation was performed. It was found to communicate with the nose. Later writers definitely showed that this was a normal antrum, mistaken for a cyst.

4. A young girl, 20 years of age, had hospital treatment for several weeks because of severe neuralgic pains, but without success. The pain ran from the upper jaw to the back of the head. Her mouth was negative. The x-ray disclosed a sharply circumscribed area in the region of the six-year molar. It looked like a cyst. A flap was made and a fine bur drilled through the bone. Upon blowing the nose with nostrils closed, air came through the drilled opening but no fluid. The flap was closed and sutured. It had proven to be a normal antrum and a serious operation was thereby avoided.

In making the exploratory puncture, a small incision is flapped back and a fine bur is used to drill through the process above the molar root. It will be felt to fall into the antrum. Air will be expelled through this opening if the nostrils are held and the patient blows through the nose. If pus in the antrum is suspected, then the antrum is washed out through this opening and the washings carefully examined for pus. If a cyst is present, the fluid released is slightly colored.

Sometimes an infected cyst may be confused with an infected antrum. Some authors puncture the cyst, aspirate the contents, and then fill the cyst cavity with a substance that will show the complete outline of the cyst in the x-ray.

Puncture also serves to distinguish between a cyst and a tumor. A case reported tells of a cyst that was opened and instead of the expected fluid it was found to be hard and in reality a tumor. A woman was operated upon

for sarcoma and partial resection of the mandible was made. After several years had passed with no healing, a radiograph was again taken and a puncture made. This revealed a cyst of long standing that had been mistaken for a growth. The author concludes with another case of a suspected growth which upon puncture and aspirations of the contents was found to be a cyst.—*Vierteljahrsschrift für Zahnheilkunde*, Vol. 1, 1929.

TECHNIC OF ROOT-FILLING WITH SILVER

By DR. A. M. SCHWARZ, Vienna

In an abstract in THE DENTAL DIGEST for July, 1929, the problem of root filling and control was described on page 471 written by the present author together with Dr. B. Gottlieb and Dr. Stein. It was therein established that the best results after careful bacteriological control was afforded by root-canal fillings of pure silver powder.

The filling of root canals with silver is not a proven method, but is still in its experimental stage. It should not be published as yet, but it can be said that the method advocated far exceeds any at present in use, following bacteriological test. Two years of clinical experience have given excellent results, and to such an extent that the author has felt justified in recommending it to the profession.

The materials used are silver, obtained by the precipitation of watery concentrated solution of silver nitrate with hydroquinon (ordinary photographic developing solution). A very fine dark gray powder is thereby produced. Alcohol or sterile water is used as a vehicle. Quickly setting cement and gutta percha points are also necessary in carrying out the technic.

To bring the silver to the pulp chamber, a spoon-shaped excavator is used. Root-canal pluggers of various sizes are needed. The canals are widened with files.

The procedure is as follows: The patient is placed in the chair so that the crown portion of the tooth is higher than the apex. This is natural in the lower jaw, but the difficulty arises in the upper jaw. It is best when working on the maxilla to have the patient throw the head as far back as possible, and in a sort of hanging position if possible. The root canal should be almost horizontal so that the silver in the pulp chamber can be forced into the canal to the apex. The silver solution is then forced along the canal and a deposit of silver takes place. It has been clearly shown that the silver reaches the very finest canals in the apical region.

The Howe silver reduction method is valuable in cases with gangrenous pulps, and canals which cannot be entered, for here the silver is deposited and prevents the bacteria from passing beyond. Unfortunately the Howe method produces such irritation at the apex that the tooth must be doomed to extraction in spite of all sedative measures.

After the apical portion of the canal has been filled with the silver, a thicker solution is placed in the pulp chamber and pressed into the canals.

The files are used to widen the canals and to force the solution towards the apex. The files are cut off at right

angles near the tip for this purpose. To be sure of getting the silver solution to the apex, the canal is first measured with the broach according to the x-ray.

With the canal filled, the pulp chamber is filled with gutta percha or cement. In those instances of a large opening beyond the apex, as with a granuloma, care must be exercised not to force the solution through. Some operators plug up an unusually wide apex with a small section of an ivory pointed wedge. It is also suggested that a combination of silver three parts and cement one part be used. The author shows many x-rays wherein excess silver, forced through the apex, has been resorbed after a time. Secretion from apical granuloma ceases when the silver is forced through the apex. It was found that in those cases where saliva could not be excluded the results were invariably bad.—*Zeitschrift für Stomatologie,* March, 1929.

FOLLICULAR CYST

By Dr. Joseph Lartschneider, Linz.

In 1909, the author observed many cases of follicular cyst and came to the conclusion that the follicular cyst was really an infected, degenerated follicle of an unerupted tooth. This was contrary to the accepted idea that this type of cyst was due to the interference of some nature in the normal development of the tooth follicle.

Necrotic, decayed roots of temporary teeth are a source of infection and damage to the permanent teeth. This danger is especially present in the bicuspids because the tooth follicle lies directly between the roots of the temporary molar. This accounts for the fact that most follicular cysts are found in relation to the bicuspids. Cysts of the six- and twelve-year molars are not found, nor those of the anterior teeth. Follicular cysts may arise about the wisdom tooth follicle. The theory here is that infection is brought about through the tonsilar region.

The author refers at length to the article on follicular cysts by Dr. Bloch Joergensen in the *Dental Cosmos* of July, 1928. The cysts of anterior teeth therein described are not true follicular cysts, but rather cysts formed about an unerupted tooth. It is true that the cyst about a tooth follicle and a fully formed unerupted tooth have much in common. The author says that after thirty-five years of practice he has not seen a cyst attached to the roots of a temporary tooth. It is invariably located and attached to the permanent tooth follicle. Follicular cysts do not break into the antrum. They push up the antrum floor until the entire antrum may be reduced to the merest slit in size.

Whenever temporary teeth are found which are decayed, it is important that they be removed as it is due to this cause alone that the permanent tooth follicle becomes infected and cystic.

When a follicular cyst is operated upon, it is inadvisable to remove the developing tooth. The cyst is eliminated and the tooth follicle carefully retained, perhaps to take its place eventually in the arch. It can always be removed at a subsequent sitting if necessary. The author concludes with some radiographs of Dr. Joergensen's, which show a bicuspid with a large cyst about the tooth follicle. The cyst was removed

but the follicle was left undisturbed. A year later another radiograph was taken which showed that the tooth had erupted normally and had taken its position in the arch with a completely formed root.—*Zeitschrift für Stomatologie,* Vol. 3, 1929.

X-RAY STUDY OF A CASE OF ROOT FRACTURE WITH LIVING PULP

By Dr. F. G. Riha, Innsbruck

The report here is of a very interesting situation. A young woman received an injury to the face which slightly loosened her two front teeth. Since the crown of one was slightly chipped she went to a dentist who removed the pulp and replaced the crown with porcelain. Four years later her face became swollen, and a radiograph was taken. It was seen that both central roots had been fractured completely across about midway of their length. On the root which had been treated by the dentist was a large infected cyst. The other central, its canal filled with secondary dentin, appeared normal and was firm.

It is therefore seen that a tooth, despite a fractured root, may remain in place, and that the function of the pulp may remain unimpaired. Whether the adjacent central which suffered the same injury developed a cyst because of its injury or through the dental treatment is a question. It is stated that as a result of an injury, a large blood clot may be formed and this, breaking down, may lead to the formation of a cyst.

The tooth with the cyst was operated upon, and by removing the fractured apical portion, the result was similar to a root amputation and a radiograph taken at a later day shows the area of the cyst healing nicely.

The ability of the pulp to continue its function despite root fracture must be borne in mind. The pulp is elastic and is not necessarily severed at the time of injury. In any event, following the history of a blow, it is advisable to order a series of radiographs to discover such conditions as were found in this case.—*Zeitschrift für Stomatologie,* Vol. 4, 1929.

DENTAL ECONOMICS

Investments for Dentists

By WALTER S. KYES, D.D.S., San Diego, Cal.

THIRD ARTICLE

If one decides to invest one's savings in bonds, they should be purchased through a reliable bond house. This is essential because of the fact that such companies have at hand circulars which set forth the information that is needed to enable the purchaser to determine what is back of the issue in the way of assets that determine bond value. Since the War the bond business and the stock-selling business as well seem to have resolved themselves into a sort of curbstone brokerage business. Salesmen have invaded every available local and civic organization that would enable them to get the attention of men who have money to invest. One particular practice has been employed which is most profitable to the salesman, that is, he not only will sell but will trade bonds. If the bonds which the investor holds are as good as or better than those which the salesman is selling, he will trade with the investor, thus enabling him to get his commission on the bonds which he trades in and also on the bonds which he accepts in exchange, provided he resells them. If a bond salesman shows a particular desire to get bonds in exchange for those which he holds, it is good evidence that the bonds in question are an A-1 investment or he would not be anxious to secure them. Such bonds, as a rule, are good property for the holder to keep rather than trade for something whose value is unknown to him.

The necessity for purchasing bonds from a reliable bond house was vividly brought to the writer's attention when he was offered some irrigation district bonds at a so-called bargain. The man who was peddling the bonds in question claimed that he had gotten them through a certain transaction, and, being in need of ready cash, he was willing to dispose of them at a discount. Upon investigation it was found that the bonds in question were apparently valuable. The company which had issued them was in a prosperous condition. This, of course, indicated that there was something irregular about the proposed transaction. The question arose: "Why the discount?" A further investigation revealed the fact that the bonds had been traded by their previous owners for some worthless oil stock, and that in the transaction the oil-stock salesman had neglected to have the bonds endorsed. When this omission was discovered and the oil group sought to have the error corrected, the original owners refused to endorse the bonds because of the fact that they had been swindled in oil, and thus the matter stood. The bonds were worthless without the signa-

tures of the original owners. The oil men had overlooked a bet, a thing which, it may be said to their credit, they seldom do.

Twenty-five years ago in the Great Plains States the only crop raised by the farmers was wheat. When wheat failed, every one was on the verge of starvation. To obviate this, the farmers of that section learned to diversify in the matter of crops, with a most gratifying result. The same is true of investments. One should, if one invests, diversify one's investments, that is, plan not to put all of one's eggs under one hen.

The writer recalls a case of a Middle-West dentist who used to tell him that every other month he purchased a share of stock in a certain railroad company. The company was then in a good financial condition. Later on it was in a costly receivership for a number of years, resulting in a reorganization followed by a number of lean years, which no doubt inflicted a tremendous loss on the holders of its stock. Had this dentist purchased a share of stock every other month in a different railroad company, his chances of loss would have been reduced by three or four out of five. Maybe he would have lost nothing, or possibly he would have made a large sum of money, in the meantime receiving dividends regularly.

The inexperienced person with money to invest is unfortunately between two fires which burn and burn, namely, the person, whether banker, broker or peddler, who has all sorts of stocks and bonds for sale which will net him a commission, and his own inherent desire to make money through speculation or by means of high rates of interest. Of the first there is no end. The "markets" and the promotions absorb the savings of the American people, as the vacuum cleaner sucks up particles of dust from a dusty rug, while that inherent urge within us all for easy money and the things which we hope it will enable us to enjoy hurries us on to a point of recklessness that is almost unbelievable. Estimates of money lost through so-called investments vary from one to two billion dollars annually, and still the "offerings" continue unabatingly and the eagerness with which they are accepted seems never to diminish in intensity.

Just at present we hear a great deal from salesmen and others regarding foreign-country bonds. Millions of dollars are flowing to Europe for the purchase of such securities. In order to illustrate the possible value of such investments for the small investor, let us view the situation in two foreign countries. One country is today ruled by a dictator whose life has been attacked at least five times in the last three or four years. The question which presents itself to the investor is, just what would happen to that particular country should the men who seek the life of the dictator succeed in their gruesome endeavors? The answer is, no doubt, revolution. And what of that from the investor's standpoint? The histories of revolutions offer no encouragement. First, in case of a revolution the interest of the bonds would doubtless cease and after years of travail the bonds might be repudiated. And yet, in spite of all this, the bonds of that country are being offered for sale across the counters of banks in this country today. The other case is that

of a country which, according to the statement of one of its statesmen, has through a redistribution of territory following the War been reduced from a powerful nation to a nation consisting of a large city with a surrounding suburban district. No rate of interest, be it ever so big, should induce the small investor to put his savings into such securities.

Many unforeseen and unavoidable things influence the value of our securities. To illustrate—an acquaintance of the writer's had a son-in-law of whom he was justly proud. This man had invented a new process for enameling hairpins, a simple thing which, under the conditions then existing, appeared to guarantee to him future opulence. There was a universal demand for hairpins, and they were so inexpensive that it hardly paid the thrifty housekeeper to pick them out of the dust which accumulated within her carpet-sweeper or Father to collect them when he cleaned out the back seat of the family car. Then came the custom of bobbed hair, which almost eliminated the hairpin as a national need, with the result that my friend's son-in-law went to work selling cash registers on a commission basis.

Much the same experience was realized by persons who a few years ago invested their savings in stock in oatmeal mills in certain Mid-Western cities. There were oats a-plenty, as well as people who through long experience had found them not only good but nutritious. Then came the era of breakfast food, predigested and otherwise, and an intensive nation-wide advertising program which closed many oatmeal mills, making their securities quite valueless.

The home-operated ice machine seems to be on the way to revolutionizing the ice business with a consequent influence on the business of ice companies.

All of this makes obvious the fact that values of securities change, sometimes quickly, and that unexpected things come up which only the very well-informed can foresee, and which may wipe out one's investments almost overnight.

Next to ready money, time is the greatest asset to the investor—time to investigate, to think out a situation for himself, to determine values. If one cannot do these things, one should invest in securities whose value is within one's understanding.

812 Watts Building

PRACTICAL HINTS

THIS DEPARTMENT IS NOW BEING CONDUCTED FROM THE OFFICE OF THE DENTAL DIGEST. TO AVOID UNNECESSARY DELAYS, HINTS, QUESTIONS AND ANSWERS SHOULD BE ADDRESSED TO EDITOR PRACTICAL HINTS, THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

DID IT EVER OCCUR TO YOU THAT:

(1) In almost every case of Vincent's angina the victim smokes cigarettes, and, if you can get him to desist, a cure is more easily effected.

(2) Once in a while a local anesthetic has no more effect than water. Later, say, in a few weeks or months, the system will have undergone a change and the local will work perfectly for the same patient.

(3) Most post-operative pain is in the inferior maxilla.

(4) It is bad practice to inject a local anesthetic into the posterior palatine foramina. It is unnecessary, and you will have more nausea and pallor than from all other injections.

J. F. A.

Editor, Practical Hints:

I should be glad to have the benefit of your experience in the following case:

A patient came to me to have an upper first molar extracted. It was a difficult extraction, and in removing the roots with forceps, I accidentally pushed one of the roots into the antrum. I could not get it out and I washed the antrum with saline solution and used a loose dressing of gauze every day for four or five days, after which I sent the patient to the radiologist. The root could be seen on the floor of the antrum but could not be extracted by the opening in the mouth, so I referred the patient to a surgeon, who after about fifteen days of hesitation decided, on the insistance of the patient, to operate and to remove the root. There was no infection present in the antrum to be seen in the x-rays, but the patient complained of a bad sensation in the throat and nose. The opening in the mouth had closed. The operation was performed about three weeks ago and the patient seems to be recovering well, but it seems to me that the surgeon who did the operation was having his first experience with a case like that and by his hesitation put it in the mind of the patient that the case was more serious than it really was.

Now, the patient wants to sue me and I should like to have your opinion on the legal side of this matter and what you think would be the issue of a trial if there was one.

M. L.

ANSWER.—The first thing to do is to secure the services of a good lawyer and, if possible, one who is experienced in malpractice cases.

We do not see how a case can be made out against you. In the first place, the forcing of a root into the antrum is not an unusual procedure and does not denote a lack of skill or care. In the second place, when you tried to wash out the root and had an x-ray taken, you acted according to accepted methods. And finally, when you referred the patient to a surgeon and the patient went to him, it would seem that the case was closed as far as you were concerned. The delay in operating and the possible lack of skill on the part of the surgeon cannot be considered your fault.

Editor, Practical Hints:

A patient, male, aged 37, reported with the left central abscessed due to a dead pulp under the filling. The gum tissue gave the impression of Vincent's, but microscopic examination proved to be negative, and it is not getting worse without treatment.

A short time before, his physician discovered sugar in his urine. Some insulin has been given him.

A full-mouth x-ray shows two rarefied apices on the only two devitalized teeth. The patient is nervous and overworked.

Is there any contra-indication to scaling and gingival treatments? What results should I expect in treating the central? Are extractions indicated?

A. J. M.

ANSWER.—There is probably no contra-indication for the local treatment of the teeth in question, but the best results cannot be expected, due to the complication of the systemic disease.

No extractions should be undertaken without consulting the physician in charge of the case.

Editor, Practical Hints:

I have a patient who has been under the care of a specialist for sinusitis for several months. She has pyorrhea and the specialist advised the extraction of all the teeth. She came to me to have them taken out and at the first sitting I extracted four upper bicuspids. She had several red spots come on the ends of her fingers and hands, and the hands became swollen and very painful. When that passed away, I took out a lower molar and the two bicuspids. Then this soreness and pain developed in her right knee and left arm, and she cannot bear to have any one touch them. I want to know what you think is causing this trouble. I have been in practice for thirty years and have never had such experience before.

C. F. D.

ANSWER.—When conditions in and around the teeth have caused systemic disturbances, the extraction of the teeth is apt to cause pronounced systemic reactions. It is for this reason that serial extraction is used in those cases.

The number of teeth extracted at one sitting and the frequency of the sittings are governed by the nature and the extent of the reaction. It would be well for you to consult with the physician before continuing.

Editor, Practical Hints:

I shall appreciate it if you will give me the following information.

In what form is it best to keep and use nitrate of silver for use in the teeth? Can you suggest some method of removing nitrate of silver stains and also fixing solution stains from a porcelain wash-bowl? Can you suggest a method of making carborundum stones and points serviceable after they have become smooth from the retention of cavity debris, etc.?

D. E. R.

ANSWER.—Howe's solution of silver nitrate is very efficient for dental use and is put up commercially in special containers that keep it in a most satisfactory manner. The saturated solution should be kept in dark-colored bottles in a dark place, but even then the solution is apt to deteriorate.

The standard method for removing silver nitrate stains is to paint first with iodin and follow with household ammonia. If the stains are well set, even this may not work satisfactorily.

To clean carborundum stones, use a stiff brush and then follow by a thorough boiling.

Editor, Practical Hints:

I have a patient for whom I made a full upper denture which was perfectly comfortable and satisfactory in every way until about ten days or two weeks ago. For the last week or so she has complained of spells of nausea or gagging, which she claims are relieved on removing the denture. The denture appears to be of the correct length, and the foramina have been relieved, but the spells seem to continue. They are not very frequent, sometimes coming once to several times a day, more particularly after a meal.

I have never run into this particular chain of circumstances following the insertion and comfortable use of a denture which has been worn six or seven weeks and shall appreciate any information which you may have as to the probable cause and remedy.

There has been no resorption that is apparent, the denture is comfortable and satisfactory, with the exception of the gagging spells, and could not stand any more postdamming as the posterior border now extends to the postpalatine dimples and leaves a very clear marking on the soft palate.

G. P. S.

We are publishing this in the hope that some of our readers may be able to be of assistance.

Editor, Practical Hints:

A patient has an upper first bicuspid which has an infected root that I have not been able to cure, so I have come to the conclusion that in order to save the tooth I shall have to try apicoectomy. I have asked several of the dentists of my acquaintance, but none of them seems to know very much about apicoectomy. I have never tried it on anyone myself, and outside of what I learned (theory only) in college I am equally at sea on the subject.

I am very anxious that this tooth should not be sacrificed, so please be good enough to help me by telling me how to do it. I have done quite a bit of minor surgery, even difficult impactions, and gotten away with it, and if

I had only seen some one do apicoectomy I should not hesitate to do it too. I happen not to have a textbook covering the subject, so I will greatly appreciate your telling me the modus operandi. The bicuspid in question has two roots, which have been filled up to the apical third. Beyond that it has been impossible for me to penetrate. Is there much risk of involving the antrum? What instrument would you use in cutting off the root? How would you smooth over the root end? Would you pack the wound?

C. G. M.

ANSWER.—About ten years ago apicoectomy was at its height, but today very little is heard concerning it. The results did not come up to the expectation of those who advocated it.

Briefly, the operation consists in laying back a flap and cutting a window in the outer alveolar plate. This may be done by a chisel or a bur. The end of the root is cut off with a cross-cut fissure bur and smoothed off with a small stone. Any infected tissue around the end of the root should be removed. The wound may be bathed in normal saline and the flap replaced. Some men advocate packing, while others prefer to leave a normal blood clot. If care is taken, there should be no danger of interfering with the antrum.

Editor, Practical Hints:

What is meant by a negative showing of the thymus gland by x-ray?

H. B. N.

ANSWER.—The thymus gland continues to develop until the second year of life, remains stationary until about the fourteenth and then undergoes fatty metamorphosis and atrophy. Death from status lymphaticus is liable to occur under general anesthesia when the thymus is hyperplastic.

The x-ray will show whether or not the thymus is of normal size for the age of the patient. If it is normal, then it is negative and there will be little danger from that source under a general anesthesia.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42d Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

Is it necessary to have a high school diploma in order to become a dental assistant?

E. H., Md.

ANSWER.—No, it is not. However, it is generally conceded by the leading authorities in business and professions that a person who has the background of a high school training, or its equivalent, is the person to employ in preference to the one who has not had such training. Efficient dental assisting requires mental alertness and good judgment, as well as adaptability of the fingers in those tasks that require one's two hands. One's mental capacity is developed through education in the higher branches of learning, and the individual who has had the advantages of a high school training is better equipped than the one who has had only an elementary education.

History records that men and women have attained high places who had little or no schooling to speak of, but these are exceptions and these individuals were gifted with unusual ability for self-education as they advanced in years.

Dear Miss Pierce:

Having recently taken a position as dental assistant, I am constantly hearing words that are entirely new to me, particularly when the doctor describes conditions in the mouth and adjacent parts. I do not like to show my ignorance and ask him to explain, and yet I should like to know something about the human body, especially the various parts of the head, bones, etc. And, too, the patients ask me to repeat what the doctor said about "such and such," and I feel so stupid when I cannot answer. What do you suggest? Are there any books that I could get to help me? Or perhaps you could print some of the terms more commonly used in a dental office.

I am very much interested in the Questionnaire and shall look for it eagerly each month.

M. M. S., Ill.

ANSWER.—It is not possible for us to print such material as would give you a sufficiently broad understanding of the various terms used in dental operations, or enough about anatomy, especially of the head, due to lack of space in this department. We suggest that you procure a textbook on anatomy, such as is used in high schools, for a better knowledge of the framework of the body, and its functions. This book will give you all that is necessary for you to know along that line. Regarding dental terms, get the dentist to lend you his dental dictionary or to procure a copy for you from the dental library of his society.

When you hear a strange word or term, jot it down and at your leisure look it up. In this way it will not take you long to learn those names and terms that now seem like Greek to you.

We hope the Questionnaire will help you, as that is what it is intended to do for all dental assistants.

Dear Miss Pierce:

I am employed in the office of an orthodontist and am anxious to help the doctor to run his plaster models. I have tried my best to make real smooth casts, but somehow every now and then I find a bubble or two in an otherwise perfect cast. The doctor has been so patient in showing me how to manipulate the plaster, etc., that I hate to ask him over and over again to show me how to pour a cast, so I am turning to you for advice. What do you think is the matter, and what do I do, or do not do, that should be changed?

S. L. J., Ala.

ANSWER.—You probably overspatulate your plaster mix and in doing so incorporate air which forms your aggravating bubbles. Try the following method. In a shallow bowl or dish place the amount of plaster you will need, or a little more. With the mixing spatula stir it up so that the water will flow through it easily, then pour the water into the dish, using care that it flows down the sides of the container until you see that the bubbling has stopped, then pour off the excess water and spatulate lightly two or three times. In pouring the cast, use the same care in flowing the plaster mixture from one point on the impression, lightly tapping the impression on the bench until every part of the surface is covered with the plaster mix; then add sufficient plaster to make the desired thickness. It is advisable to wet the impression after it has been stained and varnished. You will understand the reason for this if you will drop a piece of dry plaster in water and note the bubbles that rise to the surface.

Dear Miss Pierce:

Please tell me what to do in case of shock. I had a case in the office the other day, the doctor was out and I was not certain as to how I should handle this patient.

L. P., N. Y.

ANSWER.—Shock usually follows an injury or an operation. Perhaps your case was one of simple fainting. How-

ever, the treatment for shock is to maintain heat in the body, first of all. This can be done by placing hot water bottles, or other containers of hot water, hot pads, hot irons, hot bricks, etc., around the body, being sure that they are protected so that they do not burn the patient. The patient should lie flat on his back, with the head lower than the body, so that the heart can pump the blood into the brain. Keep the patient covered and massage the arms and legs toward the body. If the patient can swallow, give him hot drinks—tea, coffee, bouillon, etc. If recovery is not rapid, send for a doctor. This latter should always be done in any case, so as to obviate any serious consequences. First-aid treatment does not contemplate taking the place of a physician; it only is intended to tide over an emergency, and in so doing make recovery more certain. Every dental assistant should be a first-aid graduate.

Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

The Educational and Efficiency Society for Dental Assistants, First District, New York, Inc., as a member of the Dental Assistants Association of the State of New York, will participate in the presentation of clinics before the annual meeting of the American Dental Assistants Association at Washington, D. C., October 7-11, 1929. A group from New York also is being formed to attend the convention as visitors. Reservations may be made through the Chairman of Transportation, Martha Keit, 32 Court Street, Brooklyn, New York, before September first.

The Educational and Efficiency Society for Dental Assistants, New York, Inc., is now in its eighth year and holds an excellent record of achievement in aiding the dental assistant to greater education for efficiency in her work. Lectures on dental subjects and on current events, clinics, classes and a library constitute its activities, affording many educational advantages to the members. Regular meetings are held each month for a program of lectures by prominent members of the dental profession, who bring knowledge pertinent to dental assisting, and by well-informed clubwomen, who bring facts and inspiration from other spheres of women's work.

The classes are a most important activity and are held on one evening of each week under the direction of teachers from the professions. First aid, secretarial assistance, chair assistance, sterilization, laboratory technic, x-ray assistance, anatomy of the head, and other subjects bearing on the duties of the dental assistant, are studied.

The Clinic Club meets regularly each month to study the various phases of dental assisting and to help solve problems of dental office routine within the scope of the assistant's work. Table clinics are presented before national, state and local dental societies, as well as dental assistants' societies, to demonstrate the many ways in which the capable, trained dental assistant can be of value to the dentist and to the patient. The secretarial assistance section includes collection letter writing, recall systems, the proper handling of checks, recording, filing and bookkeep-

ing. The x-ray assistance section teaches the preparation of solutions and the developing, mounting and filing of films. The mixing of plaster, the pouring and separating of models, the setting up and articulating of teeth, polishing, grinding, and gold inlay work, as done by the assistant, are shown in the laboratory assistance section. The economy suggestions clinic gives original suggestions for improved office procedure. In the surgical section are shown the preparation of instruments and materials for surgical operations, and in the sterilization section are demonstrated the various technics used to maintain as far as possible a cycle of asepsis in the operating room. The exhibit on first aid is composed of charts, formulae and methods of meeting emergencies that may arise in the laboratory or operating room.

The contents of the library contain articles culled from the dental press, a pictured history of dentistry and dental equipment, and a book of practical hints for economical service. Janet Yates, Librarian, may be addressed at the Times Building, Times Square, New York, N. Y.

The Society does not conduct a registry nor is it connected with commercial enterprises. Meetings take place regularly on the second Tuesday evening of each month, October to May, inclusive, at the Academy of Medicine, 2 East 103rd Street, New York, N. Y. An invitation to join is extended to dental assistants employed in ethical dental offices. The President, Ethel R. Meyerson, may be communicated with at 27 West 86th Street, New York, N. Y. Members of the dental profession and their assistants are always welcome at the regular meetings. The date of the first meeting of the next season is Tuesday, October 15, 1929.

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—*ADDISON*

They didn't put Mr. Coolidge's picture on the new paper money, because money talks.

THAT'S HOW!

An author wrote a little book,
It didn't make the grade;
He had it barred in Boston and
His fortune soon was made.

If any man insults ye by offering ye a drink—swallow the insult.

(Father)—My son, every time you are bad I get another gray hair.
(Son)—Honest, dad? Gee, you must have been a corker. Look at grandpa!

THE PERFECT MAN

There is a man who never drinks,
Nor smokes, nor chews, nor swears;
Who never gambles, never flirts
And shuns all sinful snares.
He's paralyzed.

There is a man who never does
Anything that is not right;
His wife can tell just where he is,
At morning, noon, or night.
He's dead.

A study in logic these hot days is to be found in the stockingless fad combined with the fur neckpiece.

BET YOU DIDN'T KNOW THIS

An umbrella, when in use, resembles the shell that would be formed by rotating an arc of a curve about its axis of symmetry, attached to a cylinder of small radius whose axis is the same as the axis of symmetry of the generating curve of the shell. When not in use it is properly an elongated cone, but it is more usually helicoidal in form.

Blondes blush more than brunettes, according to a scientific investigator. But that doesn't necessarily mean that blondes blush such an awful lot.

A STUDY IN COLORS

The announcement that a Virginian has raised white blackberries recalls the fact that blackberries are red when they are green.

(Doctor)—You should go out to the country where you can smell flowers all day long. Think you can manage it?
(Patient)—I guess not, Doc. You see I'm a florist, and this is my busy season.

Due to the traffic it is always leap year in New York for pedestrians.

Mrs. McTavish ran into the house in great excitement crying "John, John there's a cow in the garden."
"Dinna stand there wastin' valuable time," replied John, "go back to the garden and milk it, and then chase her down the road."

STUNG!

(Ball Player)—We gave the umpire fifty bucks to let us win the game.
(Friend)—And still you lost?
(Player)—Yeah; the umpire was crooked.

A heathen country is one in which the payroll can be transported without an armored car.

(Beggar)—Mister, will you give me 10 cents for a sandwich?
(Scotty)—Let me see the sandwich.

PAGE A DENTIST

There is a hippopotamus in the Philadelphia Zoo that has a terrible time with a decayed tooth. When he eats in a hurry, potatoes fall into the hole, and he must have expert help to get them out.

(Young Miss)— . . . and grandma, next week I'm sailing for Paris to get my clothes.
(Grandma)—Well, well, I was just wondering where you left them.

GRIM DEATH ARRIVES

When a highwayman holds up a Scotchman, and asks for his money or his life.

WHAT A GIRL SHOULD KNOW

Modern tastes are changing;
Girls who used to be
Clever at arranging
Flowers and pouring tea
Now are called Dumb Doras,
Haven't got a show;
They get men's Angoras
When they do not know
What you do in Wall Street,
What a bank is for,
What par means and what the deuce
Mixes well with juniper juice,
What's become of Trotzky,
Where is Baffins Bay—
A girl must know what's whatsky
To get along today.

FUTURE EVENTS

THE FELLOWS OF THE INTERNATIONAL COLLEGE OF DENTISTS will hold a meeting at the Mayflower Hotel, Washington, D. C., October 7-11, 1929, at a time not in conflict with any of the activities of the American Dental Association, or with its affiliated or associated organizations.

LOUIS OTTOFY, *Registrar,*
175 Vernon Terrace,
Oakland, Cal.

THE SOUTHWESTERN DENTAL SOCIETY will hold its annual meeting in El Paso, Texas. Time—October, just prior to the meeting of the A. D. A. in Washington, D. C.

We are desirous of putting on this program by members of the A. D. A. who live in the West and can arrange to stop off en route to the Washington meeting.

All members of the A. D. A. are most cordially invited to bring along their papers, clinical material and dental ideas and help us make a big meeting.

Along with your clinical material bring your golf clubs and nerves toned for a real Mexican bull fight and other delights to be found just across the silvery Rio Grande.

Come and be our guests.

Address all communications to

L. A. NEIL, *Chairman, Program Committee,*
809 First National Bank Bldg.,
El Paso, Texas.

THE AMERICAN DENTAL HYGIENISTS' ASSOCIATION will hold its sixth annual convention at Hotel Powhatan, Washington, D. C., October 7-11, 1929.

Make your reservations early.

AGNES G. MORRIS, *General Secretary,*
886 Main St., Bridgeport, Conn.

THE BALTIMORE COLLEGE OF DENTAL SURGERY, Dental School of University of Maryland, Baltimore, Md., will dedicate its new Dental Building on Saturday, October 5, 1929. This day will be known as Alumni Day; Friday, the 4th, will be Class Reunion Day; Sunday, the 6th, will be Recreation Day; Monday, the 7th, the meeting will go to Washington, D. C., to attend the American Dental Association Convention.

In the near future a chairman will be appointed from each class to get his classmates together for a grand reunion.

HORACE M. DAVIS, *Chairman,*
Dedication Committee,
Medical Arts, Bldg.,
Baltimore, Md.

WALTER E. GREEN, *Chairman,*
Class Reunion Committee,
2958 West North Ave.,
Baltimore, Md.

THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its Fifth Annual December Meeting for Better Dentistry at the Hotel Pennsylvania, New York, December 10-14, 1929.

The officers of the Society have made arrangements to continue the meetings on the same plan as heretofore, and expect that the profession will again support them in making this meeting a success.

THE NORTH CAROLINA DENTAL SOCIETY will hold its next annual meeting at Asheville, N. C., May 5-8, 1930.

DENNIS KEEL, D.D.S., *Sec't-Treas.,*
Greensboro, N. C.